

VWC, VWCLP 1200
OWNERS MANUAL

Manual Product
Code No: P19156

Removable Chain Cover
and A Gearbox Ratio Of 56:1

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INSTALLATION, OPERATING INSTRUCTIONS AND SERVICE MANUAL
VWC 1200 AND VWCLP 1200 WINDLASSES

INTRODUCTION

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

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

The compact deck saving vertical design allows 180° wrap of the chain ensuring maximum engagement with the chainwheel. On VWC types a vertical drum allows working of mooring or docking lines from any direction.

A clutch allows manual control for lowering the anchor under free fall and manual override when using the emergency crank. The clutch also allows independent operation of the drum on VWC types.

**** 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 VWC/VWCLP 1200 WINDLASS

| | |
|----------------------------------|--|
| Maximum chain size | 10mm (3/8") short link |
| Maximum rated load at chainwheel | 1200 lbs (545Kg) |
| Current (stall load) | 430 amps @ 12volts 210 amps @ 24volts |
| Gearbox ratio | 56:1 |
| Chain haul speed at no load | 24 Metres/min (79 Feet/min) |
| Line speed (normal working) | 17 Metres/min (56 Feet/min) |

POWER OPTIONS

VWC 1200

| | | |
|---------------------------|---------|------------|
| 10mm (4") Deck clearance | P100110 | 12Volt DC. |
| | P100113 | 24Volt DC. |
| | P100116 | Hydraulic |
| 150mm (6") Deck clearance | P100128 | 12Volt DC. |
| | P100131 | 24Volt DC. |
| | P100134 | Hydraulic |

VWCLP 1200

| | | |
|---------------------------|---------|------------|
| 100mm (4") Deck clearance | P100111 | 12Volt DC. |
| | P100114 | 24Volt DC. |
| | P100117 | Hydraulic |
| 150mm (6") Deck clearance | P100129 | 12Volt DC. |
| | P100132 | 24Volt DC. |
| | P100135 | Hydraulic |

SUPPLY CABLES

See Pages 13-14

*** HYDRAULIC MODELS**

P14366

| | |
|---------------------------|--|
| Max. recommended Flow | 20 Litre/min (5.3 US Gal/min) |
| Max. recommended Pressure | 138 BAR (2000 p.s.i.) |
| Hydraulic Supply Lines | 12mm (1/2) diameter |
| Hydraulic Motor Ports | 3/4" U.N.F. |
| Oil | Viscosity ISO 32 - ISO 68 @ 20-50°C Minimum of 0.125% zinc anti wear additive. Suitable |

| | |
|------------------------------|---------|
| oils: Shell Rimula X | 15W- |
| 40; Shell Myrina M 15W-40; | Penzoil |
| SAE 10W-40; Texaco 2109 | SAE |
| 15W; Texaco 1814 SAE 10W-40. | |

*** Levels of flow/pressure below that specified can be accommodated with a motor change - see options page 5.**

| <u>Motor Option</u> | <u>Max Flow/Min</u> | | <u>Max Pressure</u> | | <u>Max Pull</u> | | <u>Normal Rate/Min</u> | |
|---------------------|---------------------|---------------|---------------------|---------------|-----------------|------------|------------------------|-------------|
| | <u>Lt</u> | <u>US Gal</u> | <u>Bar</u> | <u>P.S.I.</u> | <u>Kg</u> | <u>Lbs</u> | <u>Metres</u> | <u>Feet</u> |
| P14365 | 15 | 4.0 | 138 | 2000 | 273 | 600 | 22 | 72 |

WEIGHT (Nett including Emergency Crank)

| | <u>Product Code</u> | <u>KGS</u> | <u>LBS</u> |
|---------------------------|---------------------|------------|------------|
| VWC 1200 | | | |
| 100mm (4") Deck Clearance | P100110 | 23.8 | 52.4 |
| | P100113 | 23.8 | 52.4 |
| | P100116 | 16.8 | 37.0 |
| 150mm (6") Deck Clearance | P100128 | 24.2 | 53.2 |
| | P100131 | 24.2 | 53.2 |
| | P100134 | 17.2 | 37.82 |
| VWCLP 1200 | | | |
| 100mm (4") Deck Clearance | P100111 | 21.8 | 48.0 |
| | P100114 | 21.8 | 48.0 |
| | P100117 | 14.8 | 32.5 |
| 150mm (6") Deck Clearance | P100129 | 22.2 | 48.8 |
| | P100132 | 22.2 | 48.8 |
| | P100135 | 15.2 | 33.4 |

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 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 boats engine to break the anchor loose.**
- 4. Do not use the Windlass as a Bollard.
In all but the lightest conditions, 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 TO “OFF” BEFORE LEAVING 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 footswitches or the remote control station. When the system is not being used, ensure that the Isolator Switch is turned “OFF”.**
- 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 VWC AND VWCLP 1200 WINDLASSES ARE DESIGNED FOR ALL CHAIN SYSTEMS USING UP TO A MAXIMUM CHAIN SIZE OF 10MM (3/8") SHORT LINK CHAIN.

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

**** WARNING ****

BE SURE YOUR WINDLASS HAS BEEN CORRECTLY SPECIFIED BEFORE INSTALLATION, YOURS AND OTHERS SAFETY MAY DEPEND ON IT.

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.

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 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 VWC and VWCLP 1200 Windlasses operate in dual direction power UP/DOWN.

“UP” is clockwise rotation when looking down on the Windlass.

The deckplate 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 (refer drawing B201219 VWC types and B201220 VWCLP types). This arrangement allows the chain to have maximum engagement with the chainwheel.

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

Ideally the outlet from the chainpipe should be directly over the chain locker and the chain should have at least 500mm (2ft) clear fall to allow the chain to straighten before passing through the Windlass.

If it can be arranged the chain locker bulkhead should pass between the chainpipe outlet in the deckplate and the Windlass gearbox. This will keep the gearbox, motor and wiring or hydraulic hoses dry and away from flaying chain. Access for servicing from inside the cabin area can usually be arranged through a locker.

The chain must gravity feed into the locker. If the chainpipe 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 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 roller arrangement be such that the anchor is automatically launched.

When positioning the Windlass, make sure that there is room to swing the emergency crank so that it will clear the pulpit and life lines or Bulwark (refer drawing B201219 VWC types and B201220 VWCLP types).

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 through 4 different positions in relation to the deckplate (refer drawing B201219 VWC types and B201220 VWCLP types). This can be achieved on installation by referring to the appropriate assembly drawing and indexing at the top end of the spacer tube (item 15 on gearbox assembly-P12427) on bolts (item 15 on windlass assembly). Be sure to select the most convenient position and allow for the best run for the chain to clear the motor.

WHERE TO LOCATE THE CHAINSTOPPER

The chainstopper 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.

WHERE TO LOCATE THE FOOTSWITCHES

Footswitches are not normally fitted on open sports boats as the Windlass can be seen and operated from the helm, however if footswitches are required the following should be adhered to.

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 500mm (20”) from the 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 drawing B3424). **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 CHAINLOCKER. 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 (refer drawing B3424) or the Single Direction System (refer drawing B3555) is used.

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.

This 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 B3424).

CONTROL CIRCUITS

Footswitches (if required) and remote control circuits are to be wired using 1.5mm² (16 AWG) cable.

A manually resettable ignition proof fuse or breaker is to be fitted within 1 metre (40") of the power source on line 2 of the control cable conductor.

The above requirements are mandatory 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". Refer to drawing B3384 for wiring details.

MAIN ELECTRICAL SYSTEM

The main electrical system is a two cable ungrounded fully insulated negative return system.

The motor is of the isolated earth type.

This system is used to minimise electrolytic and corrosion problems.

The system should be wired as per drawing B3424 or D3555 having taken into consideration the best location for the main elements as previously discussed.

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".

The main supply cables should be selected from the following table:

RECOMMENDED MAIN CABLE CONDUCTOR SIZE

12 VOLT D.C. SYSTEMS

| Conductor Length Battery to Winch | | Conductor Size | | Engine Room Size Correction | |
|--|-------------|-----------------------|--------------|--|--------------|
| Metres | Feet | MM² | A.W.G | MM² | A.W.G |
| 3.1 | 10 | 26 | 3 | 34 | 2 |
| 4.6 | 15 | 26 | 3 | 34 | 2 |
| 6.2 | 20 | 26 | 3 | 34 | 2 |
| 7.7 | 25 | 34 | 2 | - | - |
| 9.2 | 30 | 42 | 1 | - | - |
| 10.8 | 35 | 54 | 0 | - | - |
| 12.3 | 40 | 54 | 0 | - | - |
| 15.4 | 50 | 67 | 00 | - | - |

24 VOLT D.C. SYSTEMS

| Metres | Feet | MM² | A.W.G | MM² | A.W.G |
|---------------|-------------|-----------------------|--------------|-----------------------|--------------|
| 3.1 | 10 | 14.0 | 6 | 14 | 6 |
| 4.6 | 15 | 14.0 | 6 | 14 | 6 |
| 6.2 | 20 | 14.0 | 6 | 14 | 6 |
| 7.7 | 25 | 14.0 | 6 | - | - |
| 9.2 | 30 | 14.0 | 6 | - | - |
| 10.8 | 35 | 14.0 | 6 | - | - |
| 12.3 | 40 | 22.0 | 4 | - | - |
| 15.4 | 50 | 22.0 | 4 | - | - |

NOTE

- a) Conductor length means the actual length of the conductor between the battery and Windlass.
- b) Recommendations allow for a maximum 10% voltage drop approximately over the conductor length.
- c) Where portion of cable runs through the engine room a size increase should be made as indicated.
- d) Recommendations assume cable insulation has a minimum thermal rating of 90°C.
- e) **The above recommendations are in accordance with the requirements of USCG, ABYC AND NMMA.**

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 chart page 5).

Several levels of supply and control are possible.

BASIC SYSTEM (Refer drawing B203101 and B203103).

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 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 CHAIN LOCKER.

MAXWELL LINK-SYSTEM MULTI-FUNCTION ELECTRO-HYDRAULIC POWER PACKS

See separate manual for these multi-function, multi-purpose systems

PREPARATION OF MOUNTING

Standard units will accommodate deck thickness up to 100mm (4"). Extra clearance models are available to accommodate deck thickness in the range of 100mm to 150mm (6").

It should be noted that keeping the thickness to no more than 100mm (4") and 150mm (6") respectively, will considerably enhance serviceability. This will allow access to the gearbox mounting bolts, allowing the gearbox to be removed as a sealed unit, without dismantling the top works.

**** 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 GASKET SUPPLIED, AND THE UNDERDECK AREA AGAINST WHICH THE LOAD WASHERS SEAT, ARE SMOOTH, FLAT AND GENERALLY PARALLEL.**
3. The gasket item 22 supplied with the Windlass can be used for accurately spotting the mounting holes and marking the cut outs. After spotting, bore the necessary holes. These must be drilled parallel to each other and square to the mounting face.

DON'T SPOT THROUGH THE GASKET WITH THE DRILL. THIS WILL DAMAGE THE GASKET.

NOTE: For boats of steel or aluminium construction, it is very important that the deckplate is insulated from the deck with the non conductive gasket provided that the mounting studs pass through insulators and that the underdeck fixings are insulated from the deck. It is also important that the anchor and chain is 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.

It is not necessary to separately earth the Windlass, as the electric motor is of the isolated earth type.

PREPARING THE WINDLASS

Remove the Windlass from the packaging.

Subject to the type of packaging used, the Windlass will be either completely assembled or with the motor separated from the gearbox.

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

4. If the motor is not fitted to gearbox assemble it as follows:

For Electric Motors

Offer motor up to gearbox aligning drive pin with slot in the worm item 2 (refer to drawings P12427).

Insert and tighten two bolts item 32 and washer items 33, 34 provided (refer to Assembly Drawings P100110 and P100111).

For Hydraulic Motors

Offer motor up to gearbox aligning drive pin with slot in the worm item 2 (refer to drawings P12427).

Insert and tighten two bolts item 32, washers items 33, 34 and nuts item 39 provided (refer to Assembly Drawings P100116 and P100117).

5. With a pen knife, or similar, carefully remove cap, item 1.
Remove screw, item 2 and retaining washer, item 3.
Unscrew clutch nut, item 5.
Lift drum, item 28 from shaft (VWC models only).
Undo cap screw item 9 with washer item 33 & 34 .
Remove chain cover item 10 & stripper item 25 from deckplate item 14.
Lift clutch cones, and chainwheel, items 6, 7 and 8 from the shaft.
Remove two keys, item 29 (VWC models), one key (VWCLP models), item 29 from shaft item 27.
Remove Wave spring washer, item 11 and Emergency Crank Collar, item 12 from the shaft item 27
6. Remove four bolts item 15 with spring washers item 16 and lift deckplate 14 from gearbox assembly.

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). DON'T OVER FILL.

7. Remove washers items 16 and 24, by undoing four nuts item 26.

MOUNTING THE WINDLASS

8. Clean the underside of the deckplate item 14.
Make sure the mounting area on the deck is properly prepared, as per step 3 above and is clean.
Using the gasket item 22 between the deckplate and the deck, lower the deckplate to the deck, guiding the mounting studs 23 through the pre drilled mounting holes and bed the deckplate down.
9. From the underside of the deck offer up the four load washers item 24 and replace four washers and nuts, items 16 and 26.

IMPORTANT

Tighten the nuts progressively and evenly.

DO NOT USE POWER

10. Lightly grease shaft item 27, using Shell Alvania R2, Castrol AP2 or equivalent grease.
Holding the gearbox assembly, feed the shaft through the deckplate from below and locate the spacer tube item 15 (refer to drawings P12427) on the spigot of the deckplate item 14. Rotate the gearbox assembly to the most appropriate of the four positions available.
Replace four bolts and spring washers items 15 and 16 removed in step 6 above.
Tighten bolts evenly and firmly - DON'T USE POWER TOOLS.

11. Ensure parts removed in step 5 above are clean along with the top area of the deckplate.

12. Use grease (specified in step 10 above) and with the aid of a clean brush or non-fluffy rag, **lightly grease the thread** on the top end of shaft item 27 and **the bores and clutch faces of the parts removed** in step 5 above, reassemble them as you go in reverse order.
IMPORTANT - care must be taken to ensure that the key/keys, item 29 are properly seated in shaft.

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 drawing B3424)

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 item 30 into the clutch nut item 5 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 item 19 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 anchorages or an emergency situation, where a fast dump is required.

Proceed as follows:

1. Insert the lever item 30 into the clutch nut item 5 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 item 19 is disengaged from the chainwheel.

NOTE: This may require jogging the Windlass “UP” under power or in an emergency by using the emergency crank lever.

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.

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

An emergency crank facility for raising the anchor is provided.

To use proceed as follows:

1. Check that the chainstopper is engaged.

If a chainstopper is not fitted ensure that the pawl item 19 is engaged with the chainwheel.

2. Insert the lever in the clutch nut and release clutches by backing off the clutch nut in a counter clockwise direction.
3. Insert the lever into the emergency crank collar item 12, pin end first, with pin uppermost, until the pin engages with one of the dogs in the chainwheel in the furthest counter clockwise position.
4. Take the weight by pulling the lever in a clockwise direction as far as possible, bring in the chain.
Ease off and the chainstopper will take the load.
Pull the lever out until the pin disengages the chainwheel dog.
Push lever to furthest counter clockwise position and re-engage with the chainwheel.
Repeat cycle, progressively bring in the anchor.

NOTE: If a chainstopper is not fitted, or if found more convenient, the pawl item 19 may be engaged with the chainwheel after each upward (clockwise) movement to hold the chainwheel from reversing.

CHAINPIPE

Chainpipe Cover can be swung out of position to relieve chain jam if necessary.

1. Loosen the cap screw (item 9) & rotate cover (item 10) clockwise,
2. Relieve chain jam
3. Replace cover in reverse order to point 1.

USING THE WARPING DRUM (VWC Models only)

The vertical capstan can be used independently of the chainwheel.
This is ideal for handling mooring lines, docking lines or a second anchor.

To use proceed as follows:

1. Check that the pawl item 19 is engaged with the chainwheel.
2. Insert the lever item 30 in the clutch nut item 5 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.

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

**** IMPORTANT ****

Failure to carry out the maintenance and service as described herein will invalidate warranty.

Recommended Lubricants:

Gearbox Oil: SAE 90, e.g. Shell Omala 320, Castrol Alpha SP 320.

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.

1. **Prior to Season** - the above deck components should be removed and greased following the instructions under steps 5, 11 and 12 of the installation instructions.

Check level of oil in gearbox. If necessary top up as per step 6 of preparing the windlass instructions.

The underdeck components should be sprayed, preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40.

Particular attention should be paid to the motor on electric units, including the motor terminals, footswitch terminals, terminals on the Reversing Solenoid Pack or the Overload/Control Box plus the battery and isolator terminals.

2. **Six-monthly** - repeat procedure under item 1 above.
3. **End of Season** - before storage carry out procedure under item 1.
4. **Above deck components** - clean the Windlass with a cloth damp with Kerosene (paraffin). Spray preferably with CRC3097 "Long Life" or alternatively, CRC6-66 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. **Don't use on chrome units.**

SERVICING OF GEARBOX

The gearbox is a totally self contained unit. Providing the Windlass is not abused this unit should give years of trouble free service.

Every three years the gearbox should be removed, oil drained, cleaned and oil replaced with SAE 90, eg Shell Omala 320, Castrol Alpha SP 320.

If further maintenance is required, refer to the appropriate assembly drawing and accompanying parts list, for disassembly.

SERVICING OF MOTOR - Electric Units

If necessary, the motor can be removed from the gearbox without draining the gearbox oil as the gearbox is a sealed unit.

The motor is removed by undoing two bolts item 32 and washes items 33 and 34 (refer to assembly drawing P100110 for VWC types and P100111 for VWCLP types).

A replaceable drive pin item 38 is a press fit in the output end of the drive shaft. This pin engages the slot in the worm item 2.

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.

Replacement brush sets are available - order Part No. SP 1383 - 12 Volt, Part No. SP1384 - 24 Volt.

SERVICING OF MOTOR - Hydraulic Units

If necessary, the motor can be removed from the gearbox without draining the gearbox oil as the gearbox is a sealed unit.

The motor is removed by undoing two bolts, item 32, washers items 33 and 34, and nuts item 39.

(Refer to drawing P100116 for VWC types and P100117 for VWCLP types)

⋮

ORDERING SPARE PARTS

When ordering spare parts, please quote the following:

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

TECHNICAL ASSISTANCE

We are always at your service. If you require information or assistance contact:

Head Office:

MAXWELL MARINE LTD

Street Address:

16 –18 William Pickering Drive
Albany
Auckland
NEW ZEALAND

Postal address:

P O Box 100-703
North Shore Mail Centre
Auckland
NEW ZEALAND

PHONE: +(64) 9-477-0900

FAX: +(64) 9-476-0555

EMAIL: info@maxwellmarine.com

WEBSITE: www.maxwellmarine.com

Australia

MAXWELL MARINE AUSTRALIA

Street Address:

Unit 1
10 Neumann Street
Capalaba 4157
Queensland
AUSTRALIA

Postal Address:

P O Box 1292
Capalaba 4157
Queensland
AUSTRALIA

PHONE: +(61) 7-3245-4755

FAX: +(61) 7-3245-5906

America

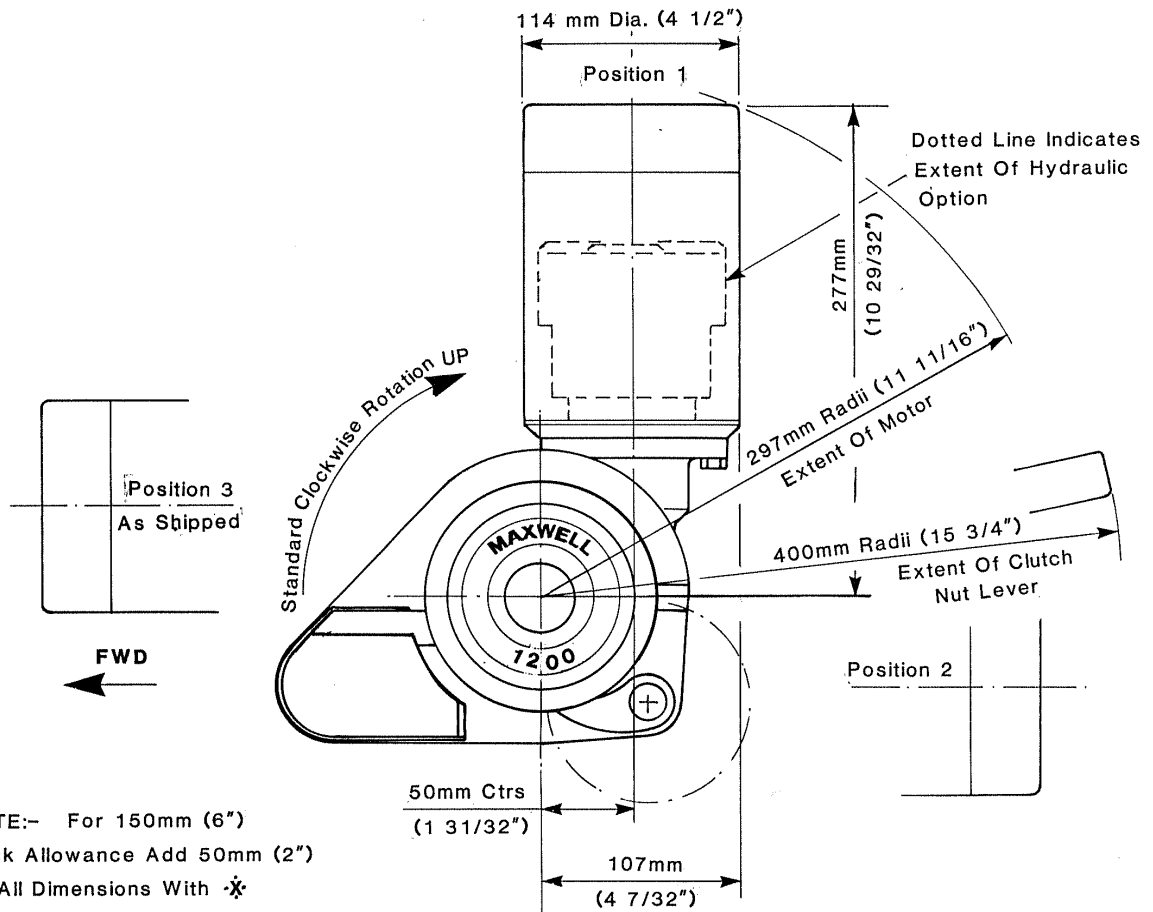
MAXWELL MARINE INC:

Street Address:

2907 South Croddy Way
Santa Ana, CA 92627-6302
USA

PHONE: +(1) 714 689 2900

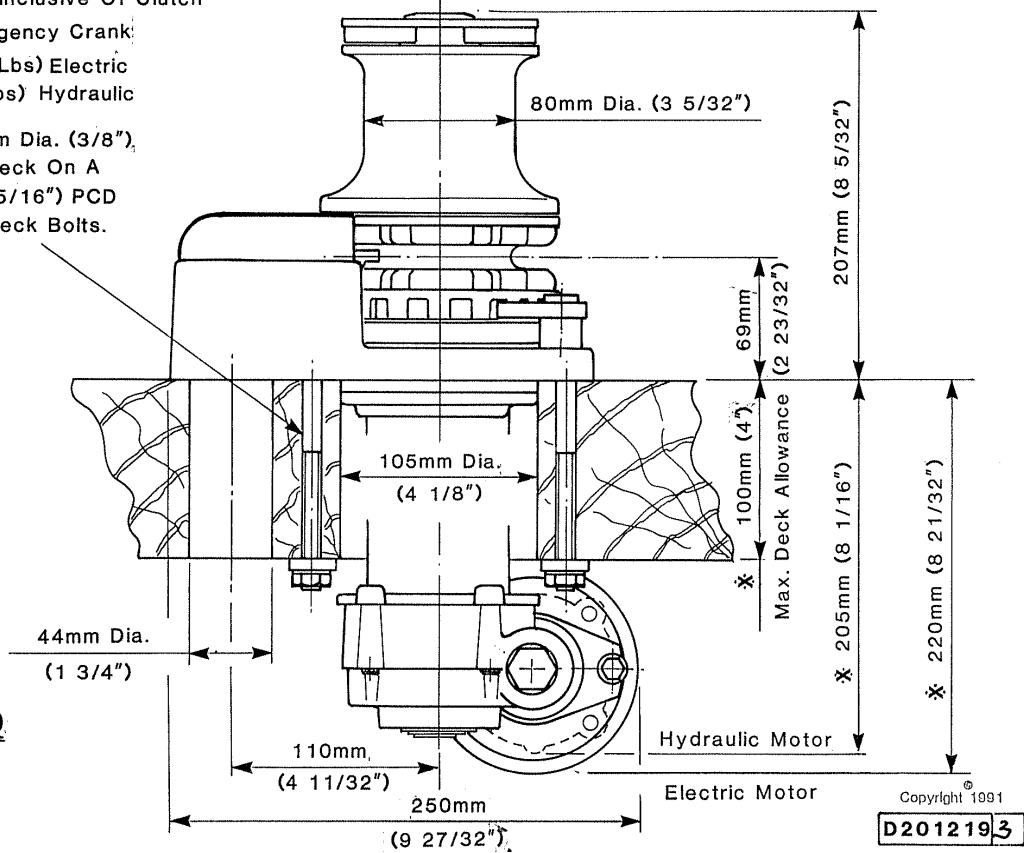
FAX: +(1) 714 689 2910



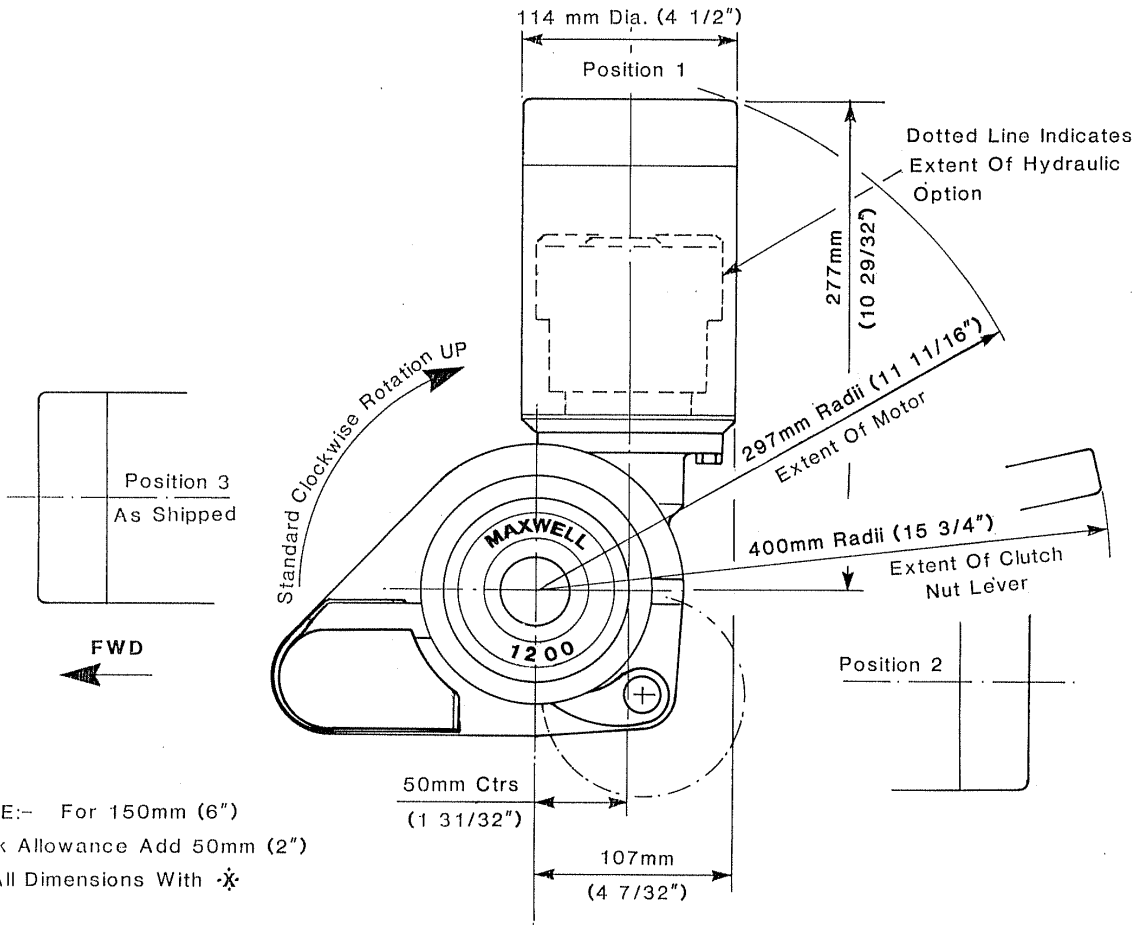
NOTE:- For 150mm (6")
Deck Allowance Add 50mm (2")
To All Dimensions With *

Nett Weight Inclusive Of Clutch
Lever /Emergency Crank:
23.8Kg (52.4Lbs) Electric
16.8Kg (37Lbs) Hydraulic

4 Holes 9.5mm Dia. (3/8"),
Through Deck On A
135mm (5 5/16") PCD
To Suit Deck Bolts.



VWC 1200

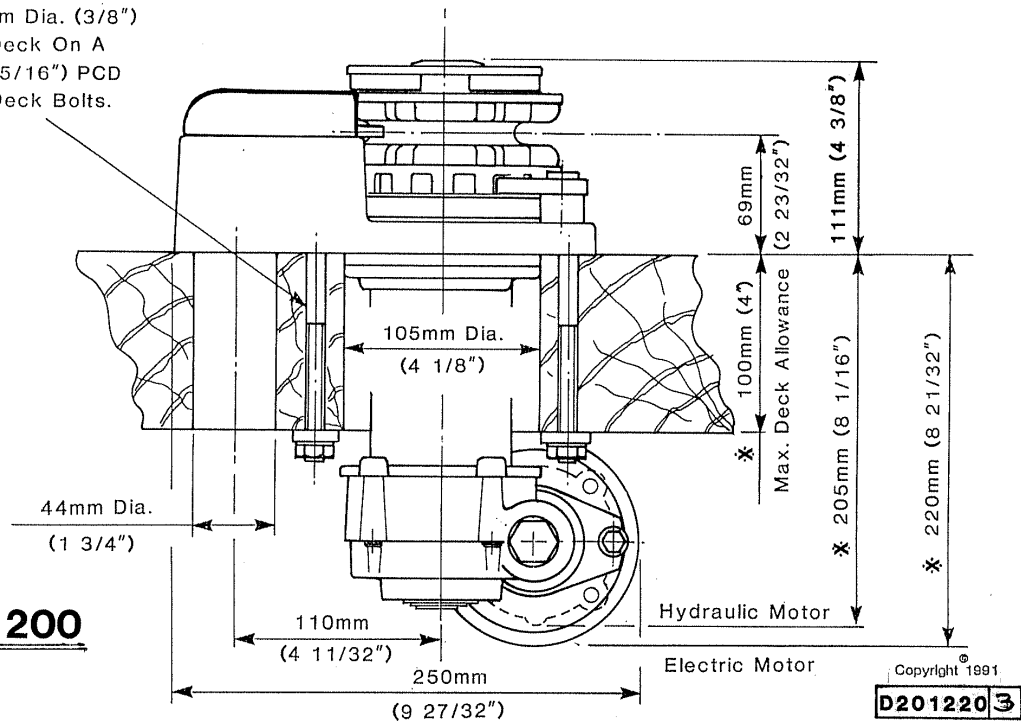


NOTE:- For 150mm (6")
Deck Allowance Add 50mm (2")
To All Dimensions With *

Nett Weight Inclusive Of Clutch
Lever / Emergency Crank
21.8Kg (47.96Lbs) Electric
14.8Kg (32.56Lbs) Hydraulic

4 Holes 9.5mm Dia. (3/8")
Through Deck On A
135mm (5 5/16") PCD
To Suit Deck Bolts.

VWCLP 1200



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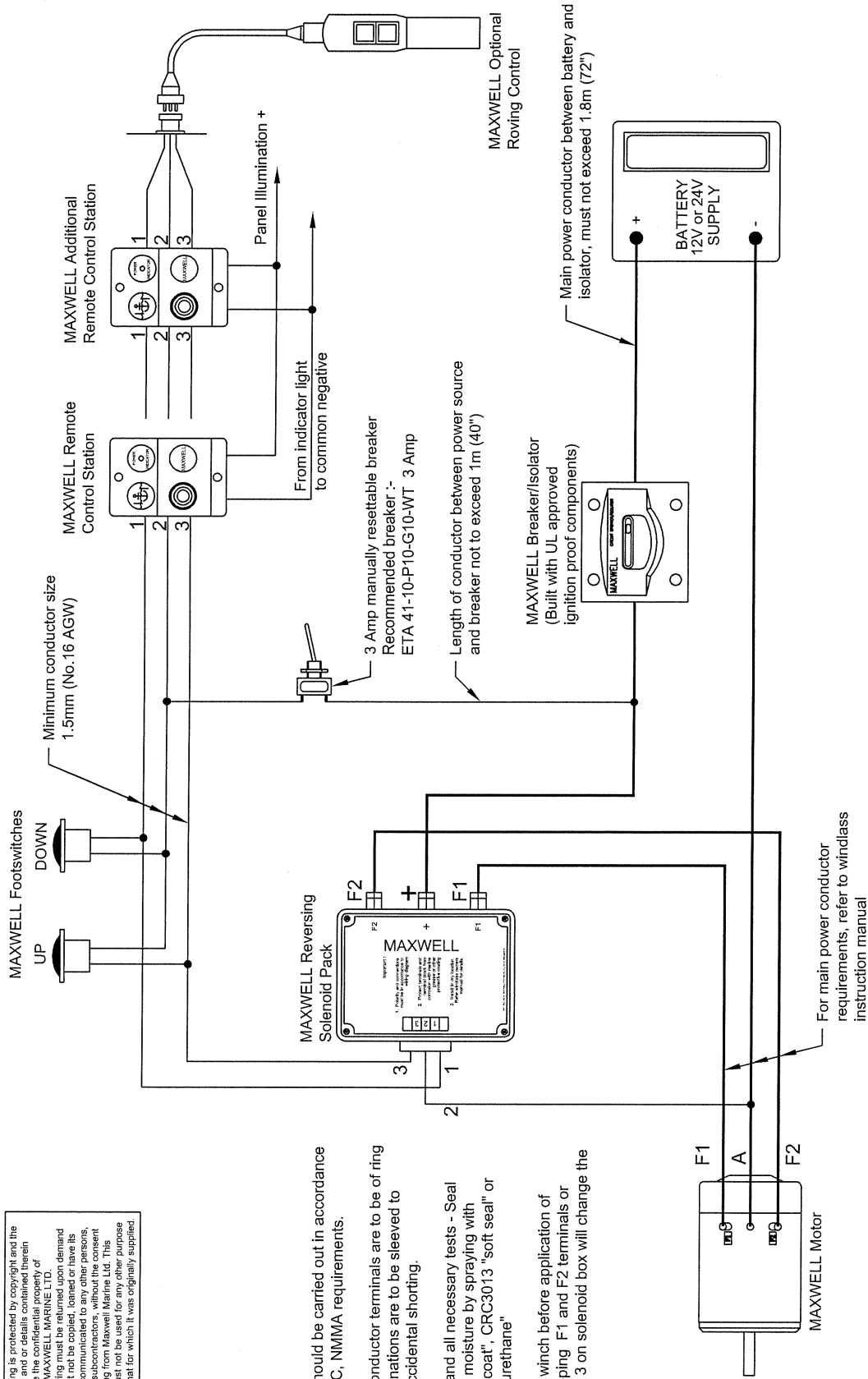
Note:

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

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

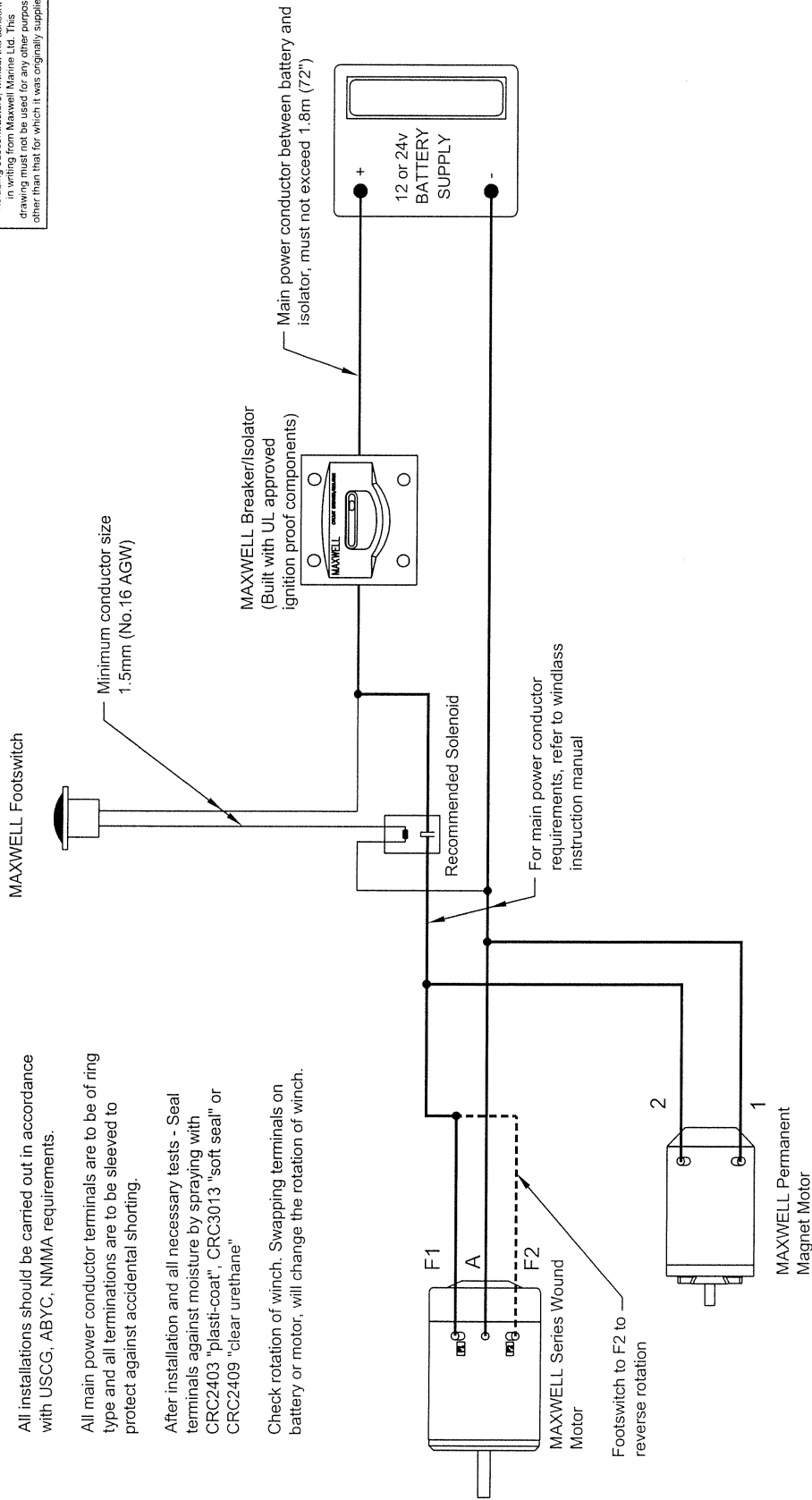
After installation and all necessary tests - Seal terminals against moisture by spraying with CRC2403 "plasti-coat", CRC3013 "soft seal" or CRC2409 "clear urethane"

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 | BVT/Dwg No. | Description | Assy No. |
|----------|---------------|---------|-----------|--------------|--|----------|
| 1.00 | Initial Issue | 21/7/04 | D/IRP | N/A | Wiring Diagram - Typical For Series Wound Motors | P101840 |
| | | | | BVT View | | |
| | | | | N/A | | |
| | | | | Sheet Size | Scale | |
| | | | | A4 | NTS | |
| | | | | Sheet 1 of 1 | | |

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Note:

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

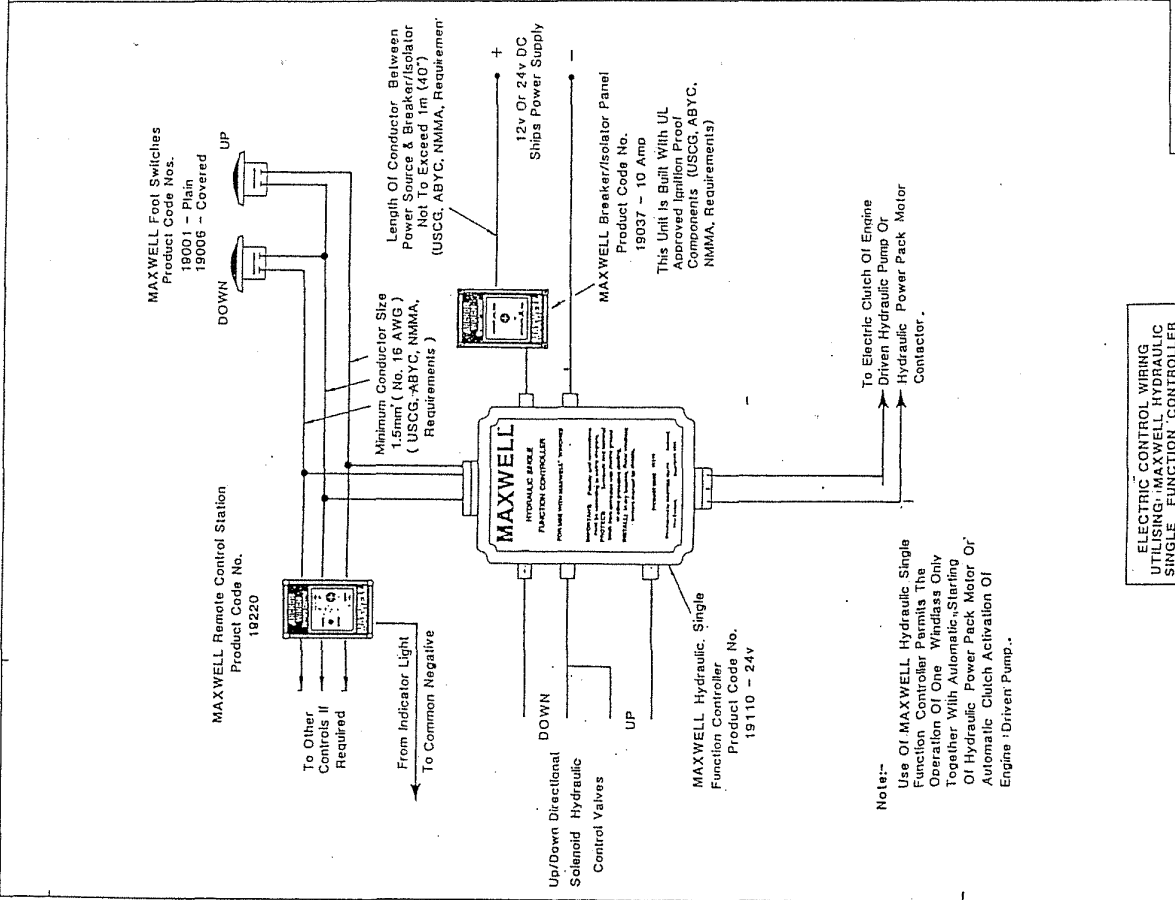
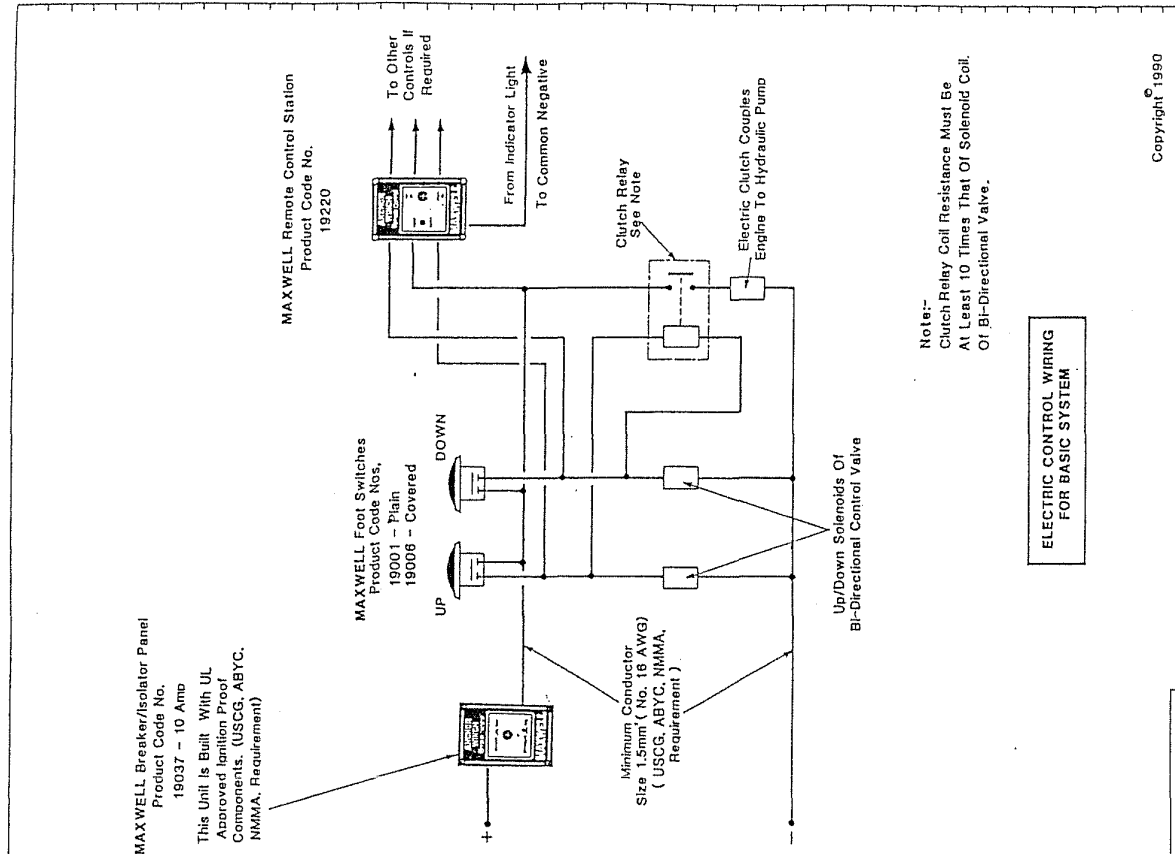
All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

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 | DII/PP | N/A | Wiring Diagram - Typical For Single Direction | P101844 |
| | | | | BVT View | | |
| | | | | N/A | | |
| | | | | Sheet Size | Scale | |
| | | | | A4 | NTS | |
| | | | | Sheet 1 of 1 | | |





Note:-
 Use Of MAXWELL Hydraulic Single Function Controller Permits The Operation Of One Windlass Only Together With Automatic Starting Of Hydraulic Power Pack Motor Or Engine : Driven Pump.

Note:-
 Clutch Relay Coil Resistance Must Be At Least 10 Times That Of Solenoid Coil. Of Bi-Directional Valve.

ELECTRIC CONTROL WIRING FOR BASIC SYSTEM

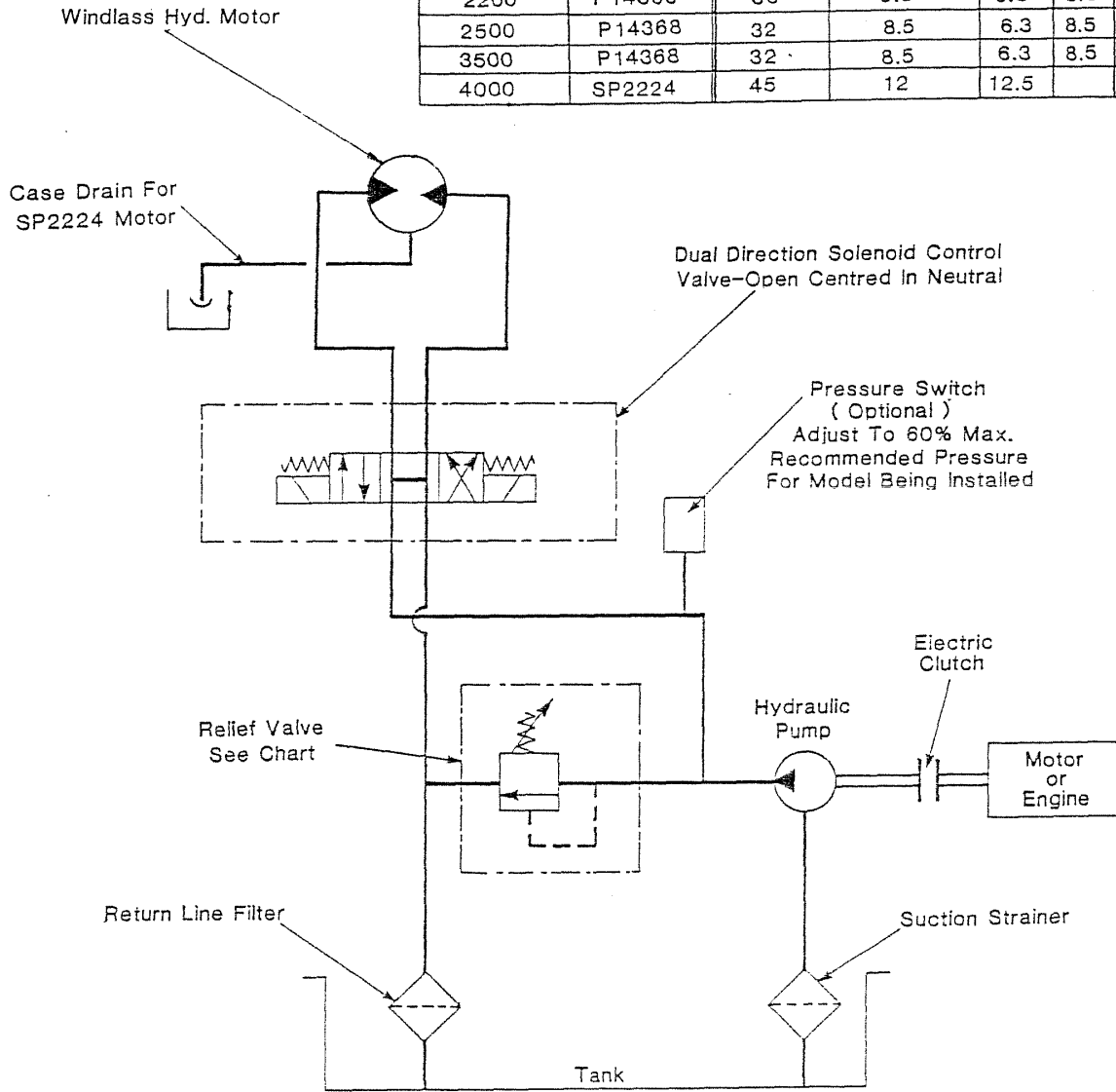
ELECTRIC CONTROL WIRING UTILISING MAXWELL HYDRAULIC SINGLE FUNCTION CONTROLLER

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

| | | |
|---|--------|-----------------------|
| SCALE | --- | TOL. UNLESS SPECIFIED |
| MATERIAL | --- | --- |
| FINISH | --- | --- |
| DRAWN BY | J.L.L. | DATE |
| CHECKED BY | --- | --- |
| MAXWELL AUCKLAND NEW ZEALAND | | Copyright © 1990 |
| ELECTRIC CONTROL WIRING DIAGRAM FOR HYDRAULIC WINDASSES - TYPE VW, VWC, VWCLP & HWC | | B 203101 2 |

* See Note 1 Below

| Winch | | Delivery | | Power | | Relief Setting | |
|--------|--------|----------|-------------|-------|-----|----------------|-----|
| Series | Motor | Ltrs/min | US Gals/min | KW | HP | psi | bar |
| 800 | P14366 | 20 | 5.3 | 3.3 | 4.5 | 1450 | 100 |
| 1200 | P14366 | 20 | 5.3 | 4.5 | 6 | 2000 | 138 |
| 2200 | P14369 | 36 | 9.5 | 6.3 | 8.5 | 1800 | 124 |
| 2500 | P14368 | 32 | 8.5 | 6.3 | 8.5 | 1700 | 117 |
| 3500 | P14368 | 32 | 8.5 | 6.3 | 8.5 | 1700 | 117 |
| 4000 | SP2224 | 45 | 12 | 12.5 | | 2400 | 165 |



HYDRAULIC SCHEMATIC INSTALLATION
UTILISING ENGINE DRIVEN MAIN PUMP

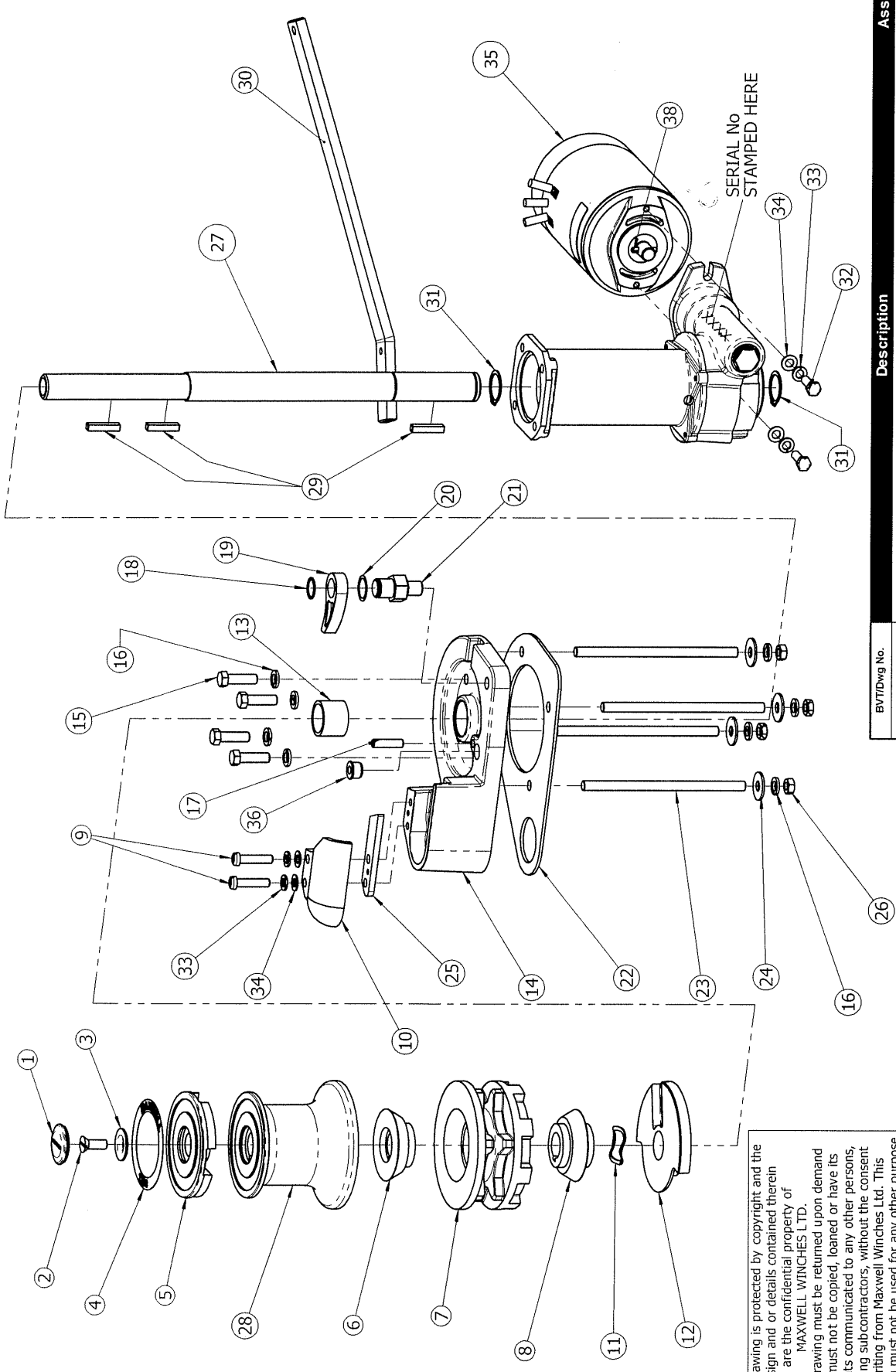
Note:-

* 1/ Chart Refers To MAXWELL "Standard Build"
Levels Of Flow/Pressure Below That Specified
Can Be Accommodated Refer Manual Or Consult MAXWELL

2/ Ensure Selected Hydraulic Components
Are Adequate For Recommended Flow Rate.

Copyright © 1990

| | | | |
|--|----------|--------|----------------------|
| MAXWELL Winches Ltd. AUCKLAND NEW ZEALAND HYDRAULIC SCHEMATIC FOR WINDLASSES TYPES:- VW, VWC, VWCLP & HWC | SCALE | --- | TOL UNLESS SPECIFIED |
| | MATERIAL | --- | |
| | FINISH | --- | |
| | DATE | 2-7-90 | B 203103 |



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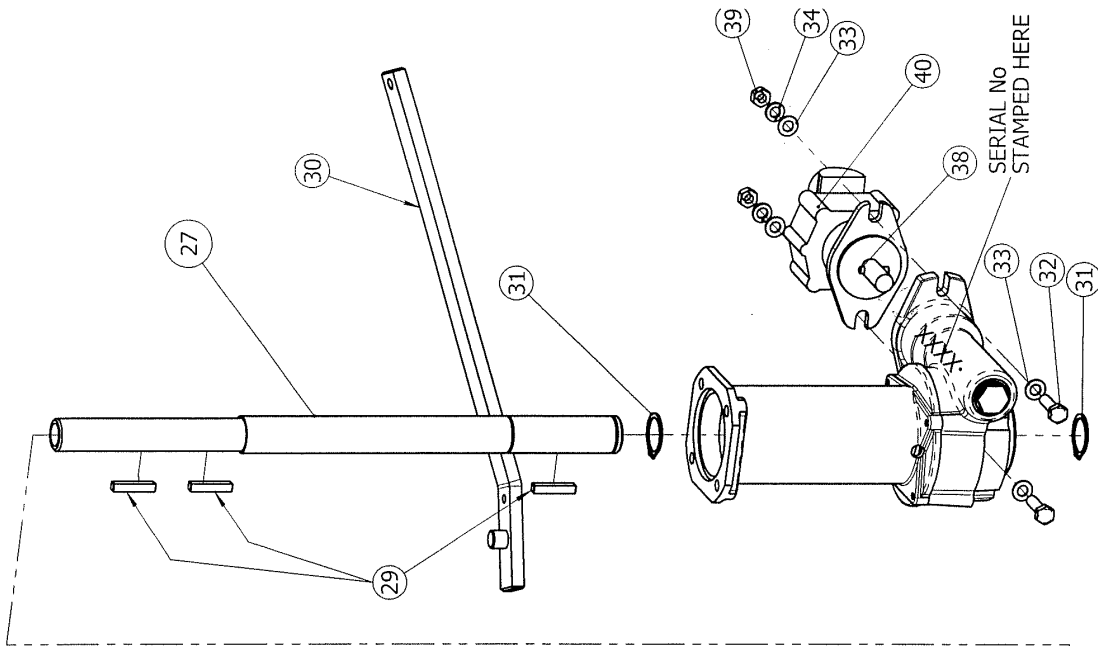
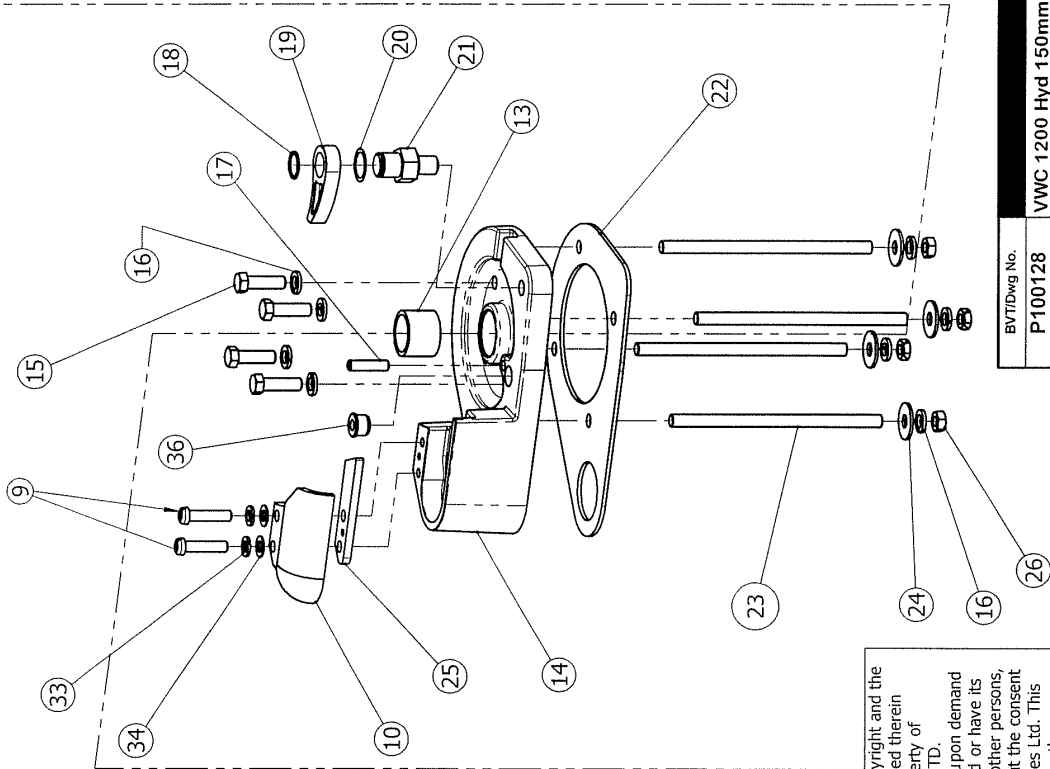
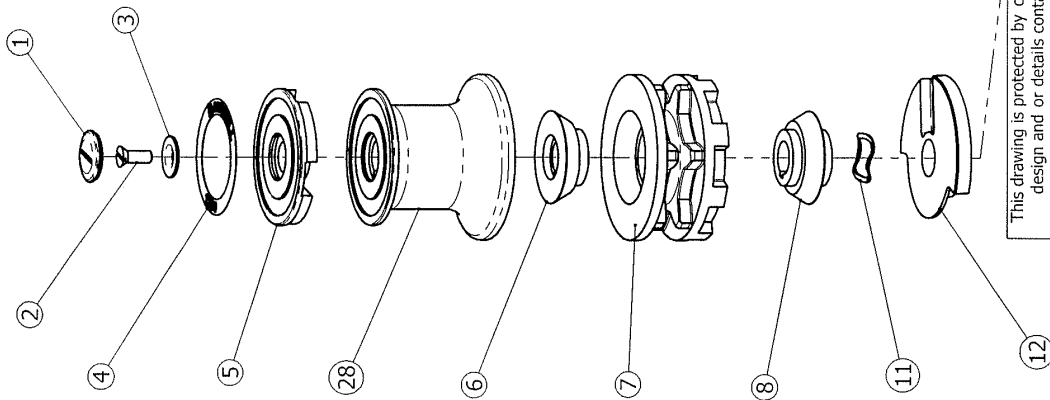
| BVT/Dwg No. | Description | Assy No. |
|--------------|------------------------|----------|
| P100128 | VWC 1200 12V 150mm TDC | P100128 |
| BVT/View | VWC 1200 24V 150mm TDC | P100131 |
| diff/dt | VWC 1200 12V 100mm TDC | P100110 |
| Sheet Size | VWC 1200 24V 100mm TDC | P100113 |
| A4 | | |
| Scale | | |
| 1:5 | | |
| Sheet 1 of 1 | | |

| Revision | Change | Made on | Des/Drawn |
|----------|--------------------------|----------|-----------|
| 5.00 | Replace 4467 with SP0070 | 6/8/2003 | JK |

VWC 1200 ELECTRIC**P100110 / P100113 / P100128 / P 100131**

| ITEM | PART NO. | DESCRIPTION | QTY |
|-------------|-----------------|-------------------------|------------|
| 1 | 3465 | CAP | 1 |
| 2 | SP40 | SCREW | 1 |
| 3 | 3467 | RETAINING WASHER | 1 |
| 4 | 3470 | LABEL 1200 | 1 |
| 5 | 3438 | CLUTCH NUT | 1 |
| 6 | 3446 | CLUTCH CONE | 1 |
| 7 | 3173 | CHAINWHEEL | 1 |
| 8 | 3447 | CLUTCH CONE | 1 |
| 9 | SP70 | CAP SCREW | 2 |
| 10 | 4528 | CHAIN COVER | 1 |
| 11 | SP472 | WAVE SPRING WASHER | 1 |
| 12 | 3441 | EMERGENCY CRANK COLLAR | 1 |
| 13 | SP663 | BUSH | 1 |
| 14 | 3442 | DECKPLATE | 1 |
| 15 | SP287 | BOLT | 4 |
| 16 | SP457 | WASHER | 8 |
| 17 | 3480 | STOP PIN | 1 |
| 18 | SP871 | SPIRAL RETAINING WASHER | 1 |
| 19 | 3372 | PAWL | 1 |
| 20 | SP463 | WAVE SPRING WASHER | 1 |
| 21 | 3461 | PAWL PIN | 1 |
| 22 | 3473 | GASKET | 1 |
| 23/A | 3174 | STUD 4" TDC | 4 |
| 23/B | 3471 | STUD 6" TDC | 4 |
| 24 | 3843 | WASHER | 4 |
| 25 | 4445 | STRIPPER | 1 |
| 26 | SP322 | HEX NUT | 4 |
| 27/A | 3448 | MAINSHAFT 4" TDC | 1 |
| 27/B | 3453 | MAINSHAFT 6" TDC | 1 |
| 28 | 3436 | DRUM | 1 |
| 29 | 3462 | KEY | 3 |
| 30 | P20041 | LEVER | 1 |
| 31 | SP878 | CIRCLIP | 2 |
| 32 | SP288 | BOLT | 2 |
| 33 | SP413 | WASHER | 4 |
| 34 | SP467 | WASHER | 4 |
| 35/A | P10156 | ELECTRIC MOTOR 12V | 1 |
| 35/B | P10157 | ELECTRIC MOTOR 24V | 1 |
| 36 | 3205 | PLUG | 1 |
| 37 | - | | |
| 38 | SP530 | ROL PIN | 1 |

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils



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Assy No
 P100134
 P100116

Description

VWC 1200 Hyd 150mm TDC
 VWC 1200 Hyd 100mm TDC

| | |
|--------------|---------|
| BVT/Dwg No. | P100128 |
| BVT View | diffct1 |
| Sheet Size | A4 |
| Scale | 1:5 |
| Sheet 1 of 1 | |

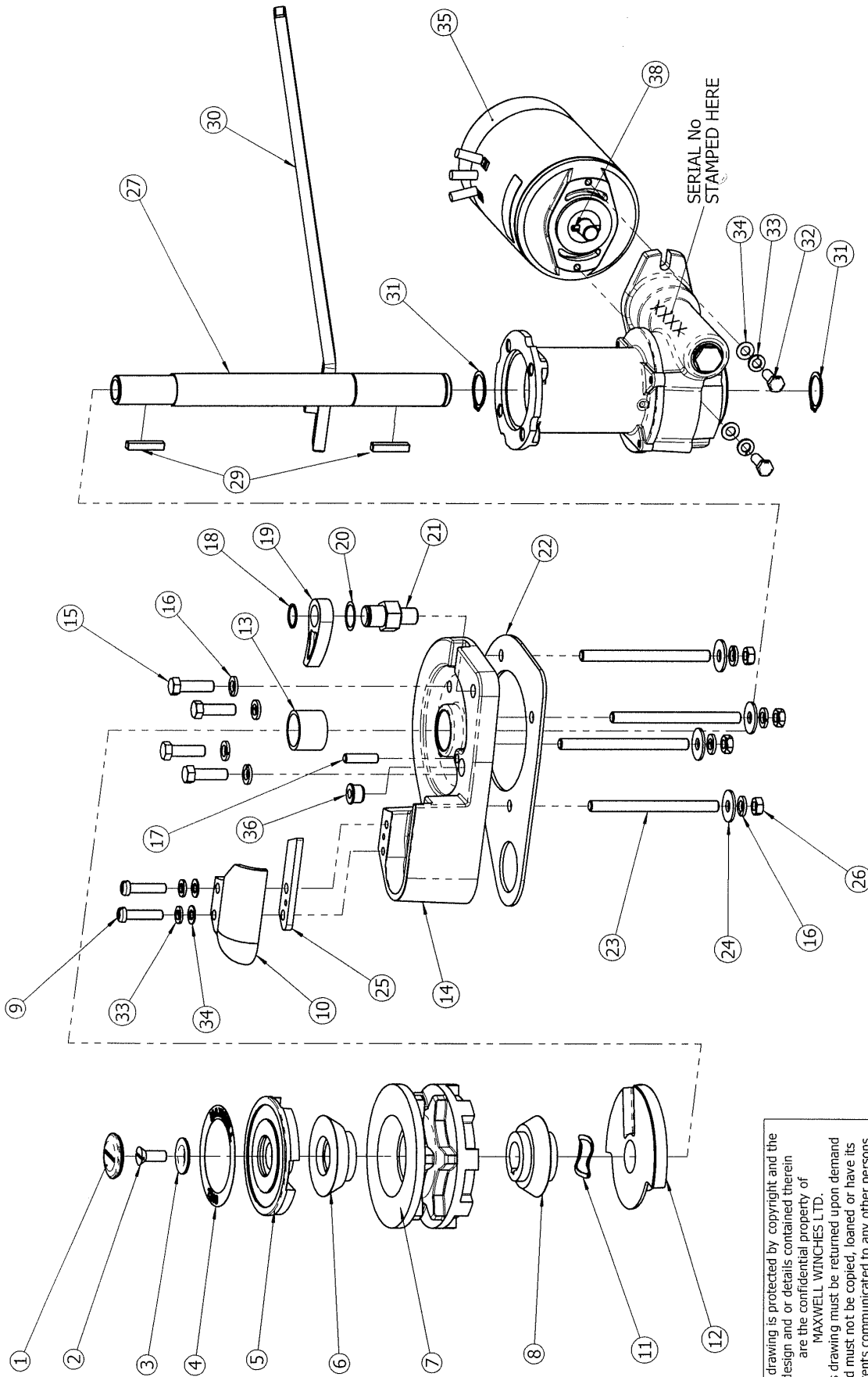
Made on Des/Drawn
 6/8/2003 JK

Revision
 5.00 Replace 4467 with SP0070
 Change

VWC 1200 HYDRAULIC**P100116 / P100134**

| ITEM | PART NO. | DESCRIPTION | QTY |
|-------------|-----------------|-------------------------|------------|
| 1 | 3465 | CAP | 1 |
| 2 | SP40 | SCREW | 1 |
| 3 | 3467 | RETAINING WASHER | 1 |
| 4 | 3470 | LABEL 1200 | 1 |
| 5 | 3438 | CLUTCH NUT | 1 |
| 6 | 3446 | CLUTCH CONE | 1 |
| 7 | 3173 | CHAINWHEEL | 1 |
| 8 | 3447 | CLUTCH CONE | 1 |
| 9 | SP70 | CAP SCREW | 2 |
| 10 | 4528 | CHAIN COVER | 1 |
| 11 | SP472 | WAVE SPRING WASHER | 1 |
| 12 | 3441 | EMERGENCY CRANK COLLAR | 1 |
| 13 | SP663 | BUSH | 1 |
| 14 | 3442 | DECKPLATE | 1 |
| 15 | SP287 | BOLT | 4 |
| 16 | SP457 | WASHER | 8 |
| 17 | 3480 | STOP PIN | 1 |
| 18 | SP871 | SPIRAL RETAINING WASHER | 1 |
| 19 | 3372 | PAWL | 1 |
| 20 | SP463 | WAVE SPRING WASHER | 1 |
| 21 | 3461 | PAWL PIN | 1 |
| 22 | 3473 | GASKET | 1 |
| 23/A | 3174 | STUD 4" TDC | 4 |
| 23/B | 3471 | STUD 6" TDC | 4 |
| 24 | 3843 | WASHER | 4 |
| 25 | 4445 | STRIPPER | 1 |
| 26 | SP322 | HEX NUT | 4 |
| 27/A | 3448 | MAINSHAFT 4" TDC | 1 |
| 27/B | 3453 | MAINSHAFT 6" TDC | 1 |
| 28 | 3436 | DRUM | 1 |
| 29 | 3462 | KEY | 3 |
| 30 | P20041 | LEVER | 1 |
| 31 | SP878 | CIRCLIP | 2 |
| 32 | SP288 | BOLT | 2 |
| 33 | SP413 | WASHER | 6 |
| 34 | SP467 | WASHER | 4 |
| 35 | - | | |
| 36 | 3205 | PLUG | 1 |
| 37 | - | | |
| 38 | SP530 | ROL PIN | 1 |
| 39 | SP366 | HEX NUT | 2 |
| 40 | P14366 | HYDRAULIC MOTOR | 1 |

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils



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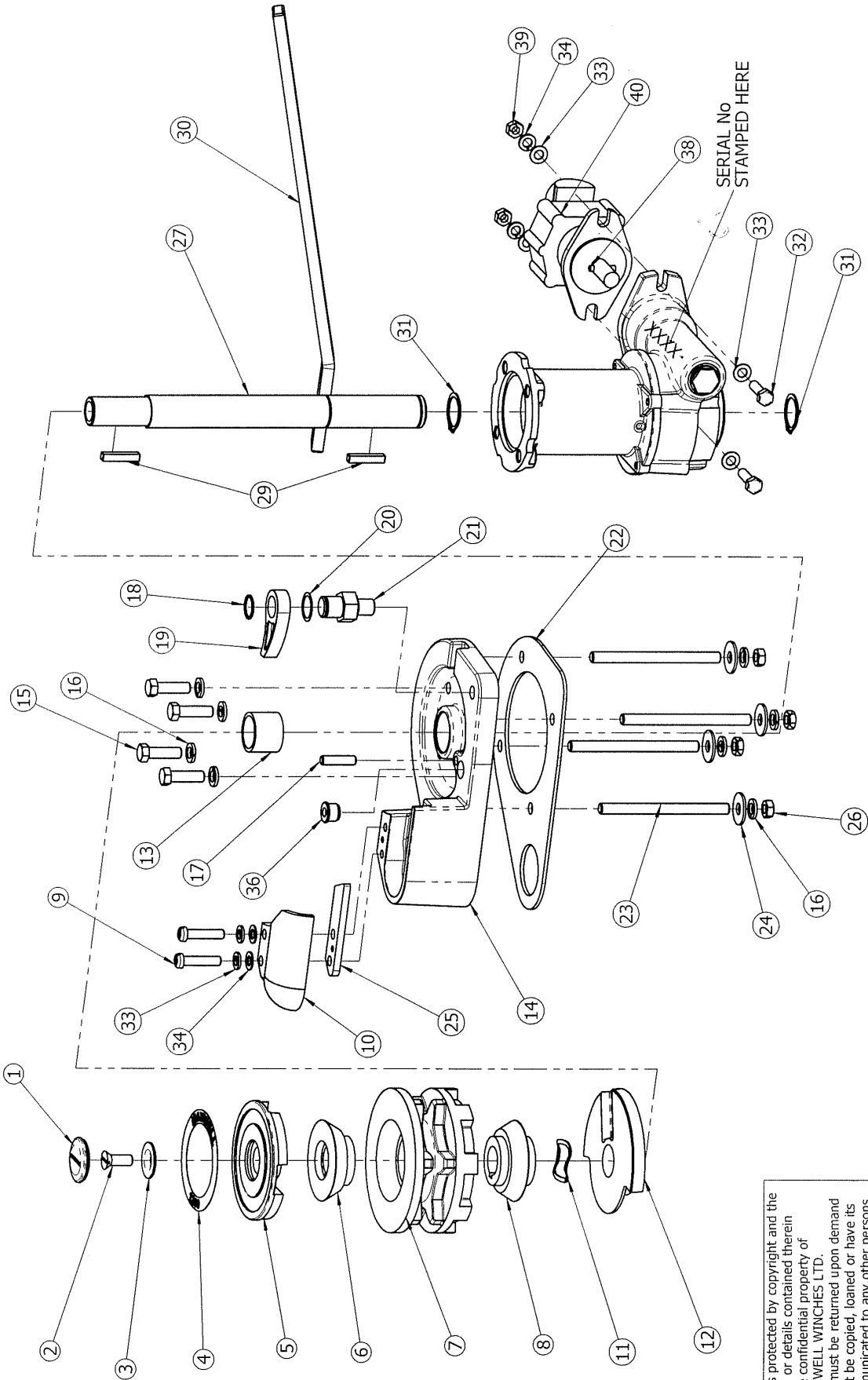
| BVT/Dwg No. | Description | Assy No. |
|--------------|--------------------------|----------|
| P100111 | VWCLP 1200 12V 100mm TDC | P100111 |
| BVT View | VWCLP 1200 12V 150mm TDC | P100129 |
| offset | VWCLP 1200 24V 150mm TDC | P100114 |
| Sheet Size | VWCLP 1200 24V 100mm TDC | P100132 |
| A4 | | |
| Scale | | |
| 1:4.5 | | |
| Sheet 1 of 1 | | |

| Revision | Change | Made on | Des/Drawn |
|----------|--------------------------|----------|-----------|
| 5.00 | Replace 4467 with SP0070 | 5/8/2003 | JK |

VWCLP 1200 – ELECTRIC**P100111 / P100114 / P100129 / P100132**

| ITEM | PART NO. | DESCRIPTION | QTY |
|-------------|-----------------|-------------------------|------------|
| 1 | 3465 | CAP | 1 |
| 2 | SP40 | SCREW | 1 |
| 3 | 3467 | RETAINING WASHER | 1 |
| 4 | 3470 | LABEL 1200 | 1 |
| 5 | 3438 | CLUTCH NUT | 1 |
| 6 | 3446 | CLUTCH CONE | 1 |
| 7 | 3173 | CHAINWHEEL | 1 |
| 8 | 3447 | CLUTCH CONE | 1 |
| 9 | SP70 | CAP SCREW | 2 |
| 10 | 4528 | CHAIN COVER | 1 |
| 11 | SP472 | WAVE SPRING WASHER | 1 |
| 12 | 3441 | EMERGENCY CRANK COLLAR | 1 |
| 13 | SP663 | BUSH | 1 |
| 14 | 3442 | DECKPLATE | 1 |
| 15 | SP287 | BOLT | 4 |
| 16 | SP457 | WASHER | 8 |
| 17 | 3480 | STOP PIN | 1 |
| 18 | SP871 | SPIRAL RETAINING WASHER | 1 |
| 19 | 3372 | PAWL | 1 |
| 20 | SP463 | WAVE SPRING WASHER | 1 |
| 21 | 3461 | PAWL PIN | 1 |
| 22 | 3473 | GASKET | 1 |
| 23/A | 3174 | STUD 4" TDC | 4 |
| 23/B | 3471 | STUD 6" TDC | 4 |
| 24 | 3483 | WASHER | 4 |
| 25 | 4445 | STRIPPER | 1 |
| 26 | SP322 | HEX NUT | 4 |
| 27/A | 3449 | MAINSHAFT 4" TDC | 1 |
| 27/B | 3454 | MAINSHAFT 6" TDC | 1 |
| 28 | - | | |
| 29 | 3462 | KEY | 2 |
| 30 | P20041 | LEVER | 1 |
| 31 | SP878 | CIRCLIP | 2 |
| 32 | SP288 | BOLT | 2 |
| 33 | SP413 | WASHER | 4 |
| 34 | SP467 | WASHER | 4 |
| 35/A | P10156 | ELECTRIC MOTOR - 12V | 1 |
| 35/B | P10157 | ELECTRIC MOTOR - 24V | 1 |
| 36 | 3205 | PLUG | 1 |
| 37 | - | | |
| 38 | SP530 | ROL PIN | 1 |

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils



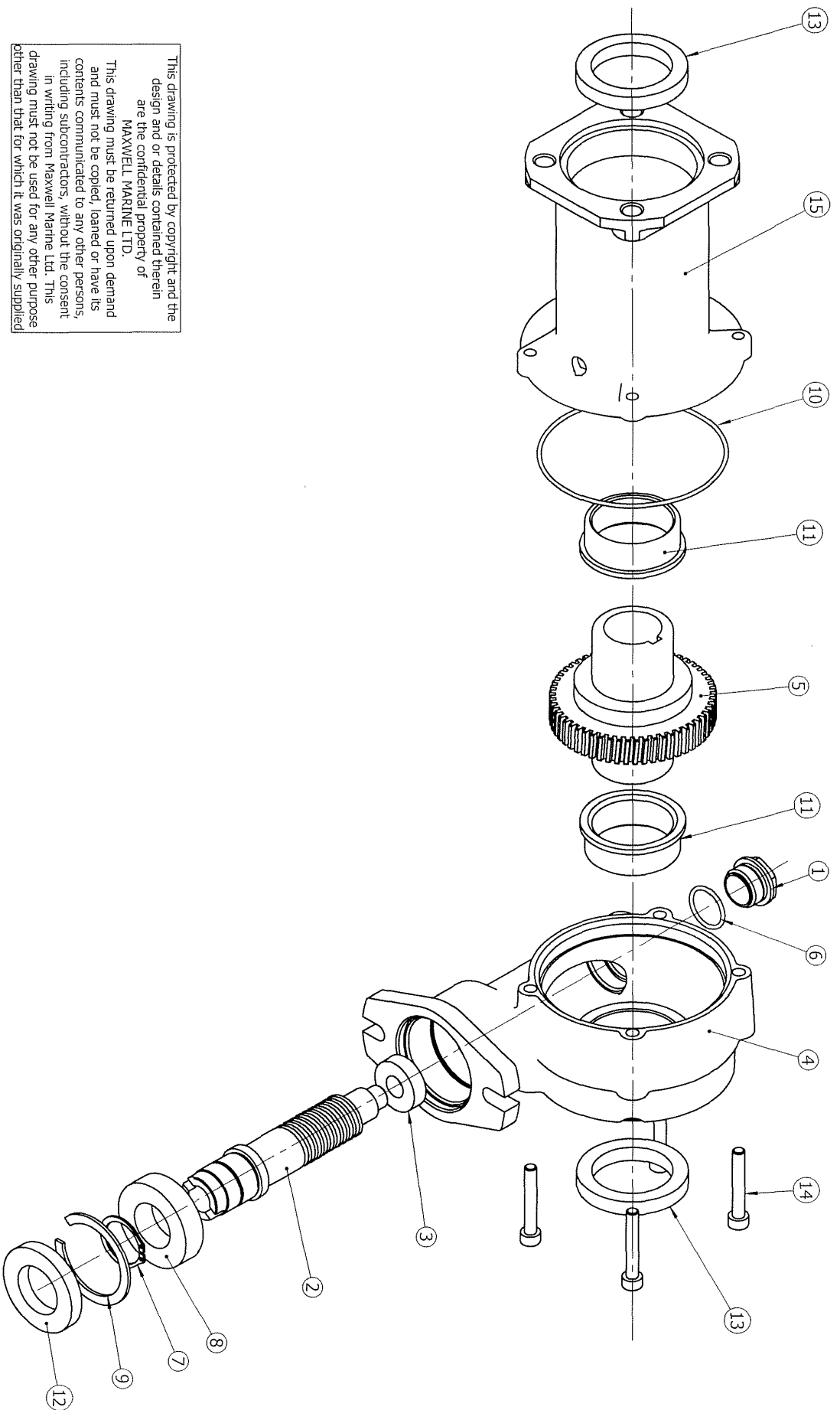
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| | | | |
|-------------|--------------------------|--------------------------|--------------|
| BVT/Dwg No. | P100111 | Description | Assy No |
| BVT/View | diffd1 | VWCLP-1200 Hyd 100mm TDC | P100117 |
| Sheet Size | A4 | VWCLP-1200 Hyd 150mm TDC | P100135 |
| Scale | 1:4.5 | | |
| Revision | | Change | |
| 5.00 | Replace 4487 with SP0070 | | |
| Made on | | Des/Drawn | |
| 5/8/2003 | | JK | |
| | | | Sheet 1 of 1 |

VWCLP 1200 - HYDRAULIC**P100117 / P100135**

| ITEM | PART NO. | DESCRIPTION | QTY |
|-------------|-----------------|-------------------------|------------|
| 1 | 3465 | CAP | 1 |
| 2 | SP40 | SCREW | 1 |
| 3 | 3467 | RETAINING WASHER | 1 |
| 4 | 3470 | LABEL 1200 | 1 |
| 5 | 3438 | CLUTCH NUT | 1 |
| 6 | 3446 | CLUTCH CONE | 1 |
| 7 | 3173 | CHAINWHEEL | 1 |
| 8 | 3447 | CLUTCH CONE | 1 |
| 9 | SP70 | CAP SCREW | 2 |
| 10 | 4528 | CHAIN COVER | 1 |
| 11 | SP472 | WAVE SPRING WASHER | 1 |
| 12 | D3441 | EMERGENCY CRANK COLLAR | 1 |
| 13 | SP663 | BUSH | 1 |
| 14 | 3442 | DECKPLATE | 1 |
| 15 | SP287 | BOLT | 4 |
| 16 | SP457 | WASHER | 8 |
| 17 | 3480 | STOP PIN | 1 |
| 18 | SP871 | SPIRAL RETAINING WASHER | 1 |
| 19 | 3372 | PAWL | 1 |
| 20 | SP463 | WAVE SPRING WASHER | 1 |
| 21 | 3461 | PAWL PIN | 1 |
| 22 | 3473 | GASKET | 1 |
| 23/A | 3174 | STUD 4" TDC | 4 |
| 23/B | 3471 | STUD 6" TDC | 4 |
| 24 | 3843 | WASHER | 4 |
| 25 | 4445 | STRIPPER | 1 |
| 26 | SP322 | HEX NUT | 4 |
| 27/A | 3449 | MAINSHAFT 4" TDC | 1 |
| 27/B | 3454 | MAINSHAFT 6" TDC | 1 |
| 28 | - | | |
| 29 | 3462 | KEY | 2 |
| 30 | P20041 | LEVER | 1 |
| 31 | SP878 | CIRCLIP | 2 |
| 32 | SP288 | BOLT | 2 |
| 33 | SP413 | WASHER | 6 |
| 34 | SP467 | WASHER | 4 |
| 35 | - | | |
| 36 | 3205 | PLUG | 1 |
| 37 | - | | |
| 38 | SP530 | ROLL PIN | 1 |
| 39 | SP366 | HEX NUT | 2 |
| 40 | P14366 | HYDRAULIC MOTOR | 1 |

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils



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| | | | | | |
|-------------------|---------------|------------------------------------|--|--------------------------|----|
| Revision | | Change | | Made on Des/Drawn | |
| 5.00 | Initial Issue | | | 29/06/2004 | DH |
| BVTDwg No. | | Description | | Assy No. | |
| P12427 | | 1200 VWC GEARBOX 5.6:1 SPACER TUBE | | P12427 | |
| BVT View | | Sheet Size | | Scale | |
| dfted | | A4 | | 1:1 | |
| Sheet Size | | Scale | | Sheet 1 of 1 | |

GEARBOX ASSEMBLY**P12427**

| ITEM | PART NO. | DESCRIPTION | QTY |
|-------------|-----------------|-----------------------|------------|
| 1 | 3223 | SIGHT GLASS | 1 |
| 2 | 3400 | WORM | 1 |
| 3 | SP643 | BALL BEARING 12x28x8 | 1 |
| 4 | 3133 | WORM BOX | 1 |
| 5 | 3584 | WORMWHEEL 56T | 1 |
| 6 | SP720 | 20x2 O-RING | 1 |
| 7 | SP838 | 1in EXT CIRCLIP | 1 |
| 8 | SP642 | BALL BEARING 25x12x47 | 1 |
| 9 | SP844 | 47 x 1.85 INT CIRCLIP | 1 |
| 10 | SP726 | O-RING ID 90MM X2MM | 1 |
| 11 | 3145 | BUSH | 2 |
| 12 | SP721 | 25x47x7 OIL SEAL | 1 |
| 13 | SP724 | 40x55x8 OIL SEAL | 2 |
| 14 | SP159 | M6x40 CAP SCREW | 4 |
| 15/A | 3183 | SPACER TUBE 4 -IN | 1 |
| 15/B | 3418 | SPACER TUBE 6 -IN | 1 |

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils