HWC 1200
SINGLE DRUM/SINGLE CHAINWHEEL

OWNERS MANUAL

Manual Product
Code No: P19083

HWC 1200
OWNERS MANUAL

INSTALLATION, OPERATING INSTRUCTIONS AND SERVICE MANUAL
HWC 1200 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 1200 WINDLASS

Maximum chain size	10mm (3/8") short link
Maximum rated load at chainwheel	1200 lbs (545 Kg)
Current (stall load)	430 amps @ 12volts 210 amps @ 24volts
Gearbox ration	56;1
Chain haul speed at no load	24 metres/mim (79 Feet/min)

POWER OPTIONS
HWC 1200

P100203	12Volt DC.
P100204	24Volt DC.
P100205	Hydraulic

SUPPLY CABLES See Pages 13-14

*** 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 10W-40; BP HLPHM 32-68; Castrol Hyspin 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
(Nett including Emergency Crank)

Product code	KGS	LBS
P100203	23.5	51.7
P100204	23.5	51.7
P100205	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.**
   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 "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. 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 HWC 1200 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 1200 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. (Refer drawing B201229).

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. (Refer drawing B201229).

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 layout drawing provided (refer Drawing B3515), and page 25A.

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 drawing B3427). **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 (refer drawing B3427) or the Single Direction system (refer drawing B3633) 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.
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 B3427).

CONTROL CIRCUITS

MAXWELL Windlasses may be installed for single direction or dual direction operation. The control circuits are detailed in Drawings D3633 and B3427.

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 on Drawing B3427.**
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

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 B3427 or D3633 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	14.3	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 90ºC.
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 4).

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 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 layout drawing B3515 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.
   Clean the underside of the Windlass case item 8.

If the deck is steel or aluminium, make sure the Windlass is insulated from the deck with a timber pad or non-conductive gasket, that the mounting bolts and underdeck fastenings are insulated from the deck.
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 item 30 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.

Proceed as follows on the starboard running gear.

8. Remove stripper arm item 23 from chainpipe item 26 by undoing two bolts item 22, nuts item 24 and washers item 25.
With a pen knife, or similar, carefully remove cap, item 1.
Remove screw, item 2 and retaining washer item 3.
Unscrew clutch nut, item 21.
Slide outer clutch cone item 20 and chainwheel item 19, and inner clutch cone item 18 from shaft item 11.
Slide emergency crank collar item 17 and wavey washer item 16 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 retaining ring item 15, pawl item 14 and pin item 13 must be removed and reassembled on the port side.

9. Ensure parts removed in step 8 above and the shaft item 11 are clean.

10. 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 item 11 and **the bores and clutch faces of the parts removed** in step 8 above, reassemble them as you go in reverse order.
    IMPORTANT: Care must be taken to ensure the bush item 36 remains in place on the starboard side. Care must also be taken to ensure that keys item 10 are properly seated in the 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 B3427)

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 27 into the clutch nut item 21 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 14 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 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 item 27 into the clutch nut item 21 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 14 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

An emergency crank facility for raising the anchor is provided.

To use proceed as follows:

1. Check that the chainstopper is engaged and that the pawl item 14 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 17, pin end first, until the pin engages with one of the dogs in the chainwheel in the furthermost forward position.

4. Take the weight by pulling the lever back as far as possible, bring in the chain.
   Ease off and the pawl will take the load.
   Pull the lever out until the pin disengages the chainwheel dog.
   Push lever to the furthermost forward position and re-engage with the chainwheel.
   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 item 14 are engaged with the chainwheel.

2. Insert the lever item 27 in to the clutch nut item 21 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

**** IMPORTANT ****

Failure to carry out the maintenance and service as described herein will invalidate the 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 running gear should be removed and greased following the instructions under steps 8, 9 and 10 of the installation instructions.

   The underdeck components should be sprayed, preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40.
   Particular attention should be given to all electrical equipment, footswitch terminals, terminals on the Reversing Solenoid Pack or the Overload/Control Box, and the roving control station(s) and power supply isolator terminals.

   Check level of oil in gearbox. If necessary top up as per step 4 of the preparation and mounting instructions.

2. **Six monthly -** repeat procedure under item 1 above.

3. **End of Season -** before storage carry out procedure under item 1.

4. **Running gear -** clean with a cloth damp with Kerosene (paraffin). Spray preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40. Polish off with a clean non-fluffy cloth.

   Regular use of CRC3097 "Long Life" will assist maintaining the bright chrome finish of the running gear.

   Natural lustre of units with bronze running gear 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 sealed unit. Providing the Windlass is not abused this unit should give years of trouble free service.
Every three years the gearbox oil should be drained, and the gearbox flushed. Replace the oil with SAE 90, e.g. Shell Omala 320, Castrol Alpha SP 320. Removing the Windlass from the deck will facilitate this.

If further maintenance is required, the gearbox can be removed from the case, refer tod drawing P100203 for Electric units and P100205 for Hydraulic units.

Proceed as follows:

1. **Remove both sets of running gear** as per step 8 of installation instructions above.

2. Remove two clips item 9 from shaft either side of the gearbox and slide shaft item 11 from case.

3. **On port side proceed as follows:**
   Remove four bolts item 5 and washers item 6.
   Gently tap gearbox assembly releasing it from the case item 8.

4. For disassembly of gearbox refer to drawing B201239 and accompanying parts list.

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 5 and washers items 6 and 33 (refer to assembly drawing P100203).
A replaceable drive pin item 34 is a press fit in the output end of the drive shaft. This pin engages the slot in the worm item 11 drawing B201239.
Providing the Windlass is properly installed with the Maxwell Breaker/Isolator 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 38, washers items 6 and 33, and nuts item 37. (Refer to drawing P100205).

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

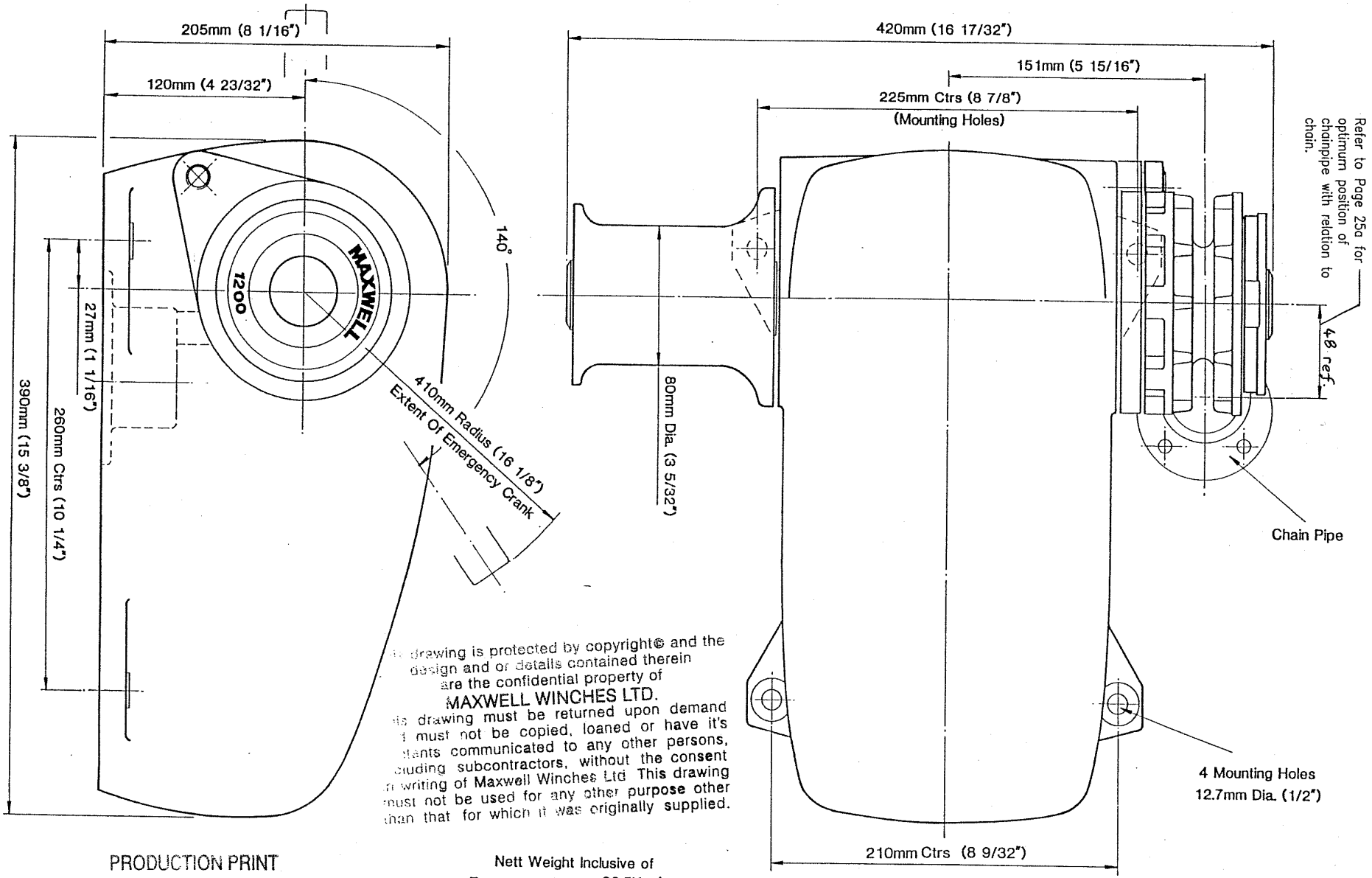
Postal Address:
P O Box 1292
Capalaba 4157
Queensland
AUSTRALIA

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

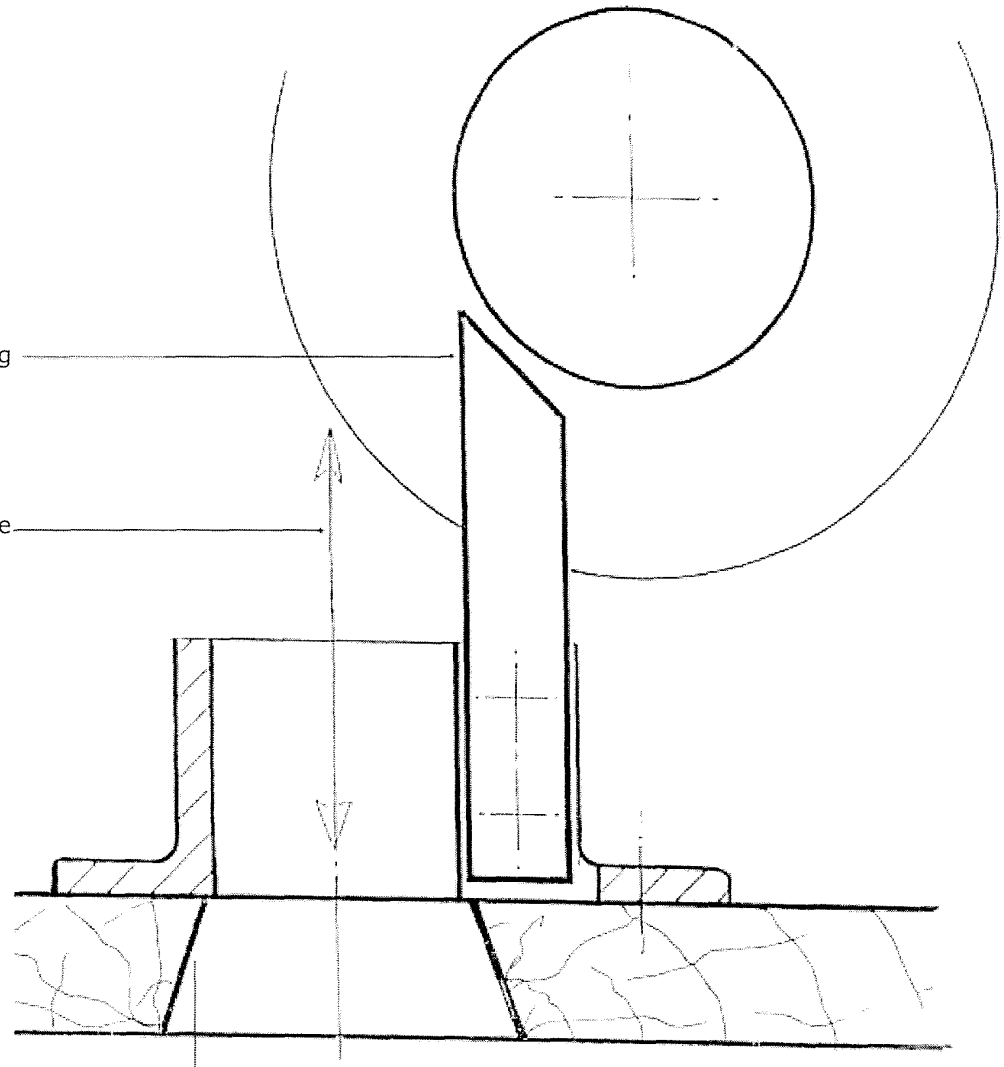


PRODUCTION PRINT
DESTROY ALL PREVIOUS ISSUES

DATE 05/APR/2002

Nett Weight Inclusive of Emergency Crank 23.5Kg (51.7Lbs)

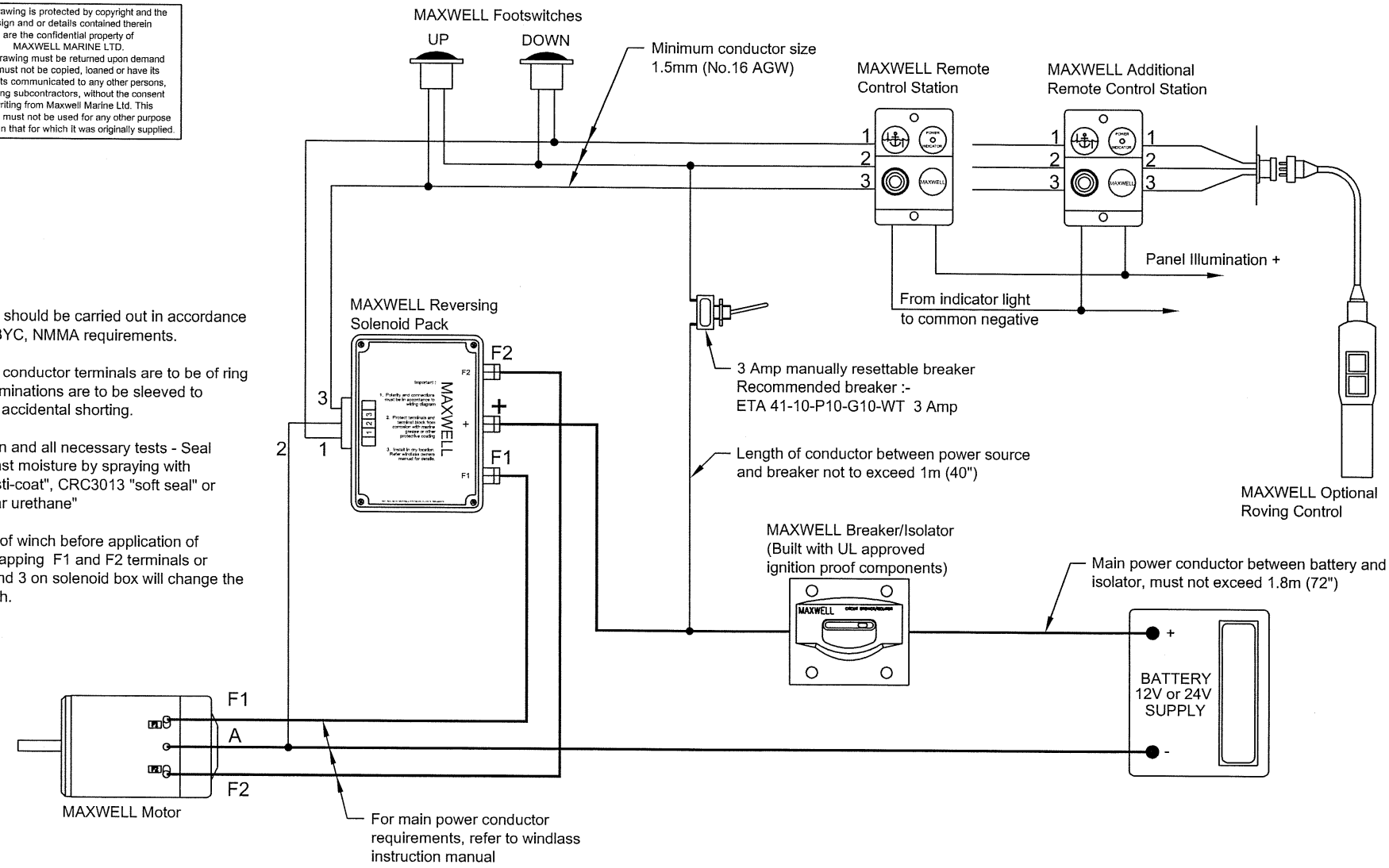
MAXWELL Winches Ltd. AUCKLAND NEW ZEALAND	SCALE		TOL UNLESS SPECIFIED
	MATERIAL		
	FINISH		
HWC 1200	DRAWN	D.J.I	B 201229
	DATE	24.11.00	REV N



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

MAXWELL

BVT/Dwg No.	Description	Assy No.
	HWC Chainpipe Instalation	P100228
BVT View		
Sheet Size: A4	Scale: 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 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	DI/RP	N/A	Wiring Diagram - Typical For Series Wound Motors	P101840
				BVT View		
				N/A		
				Sheet Size / Scale		
				A4 / NTS		
				Sheet 1 of 1		

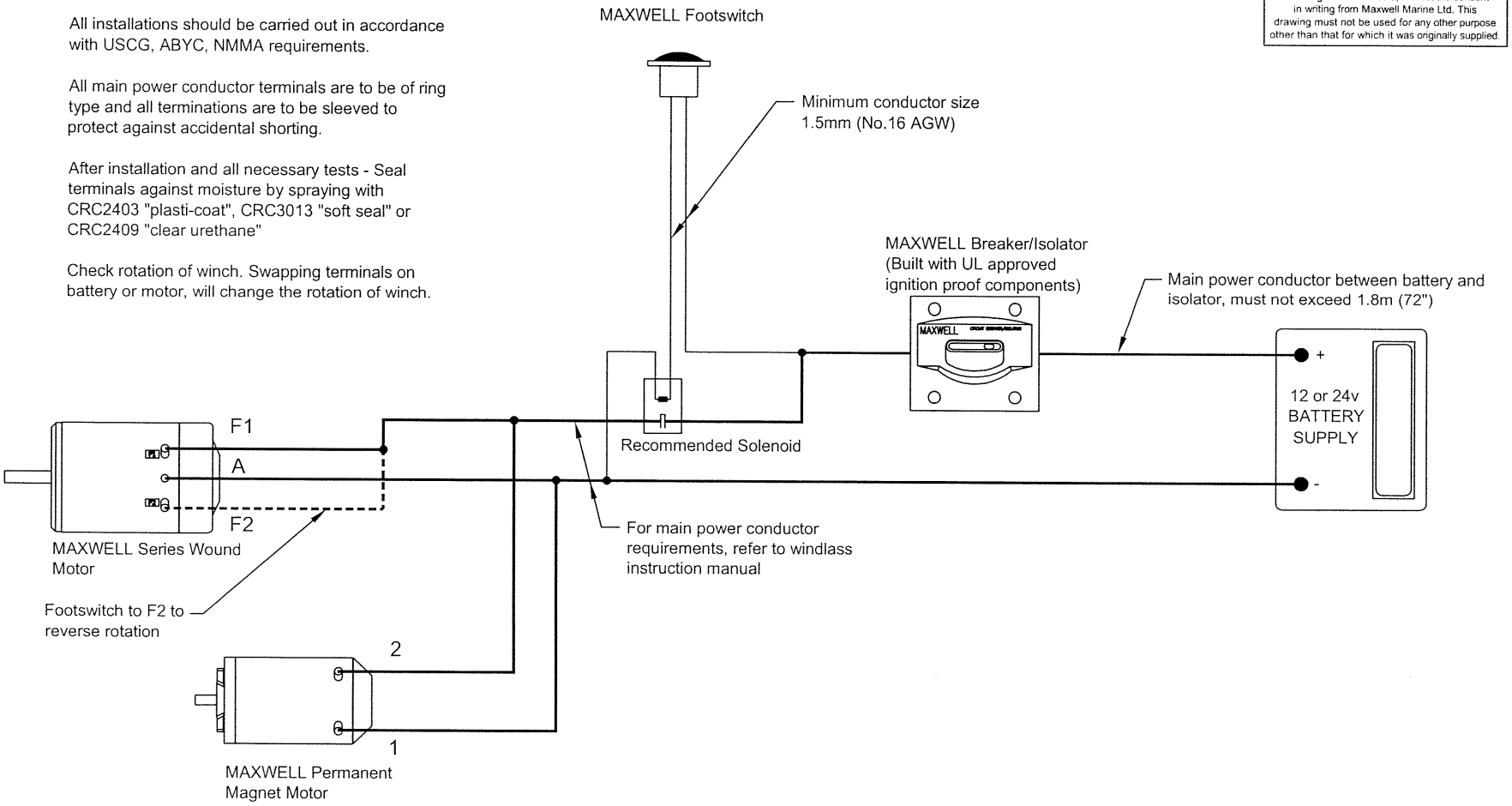
Note:

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

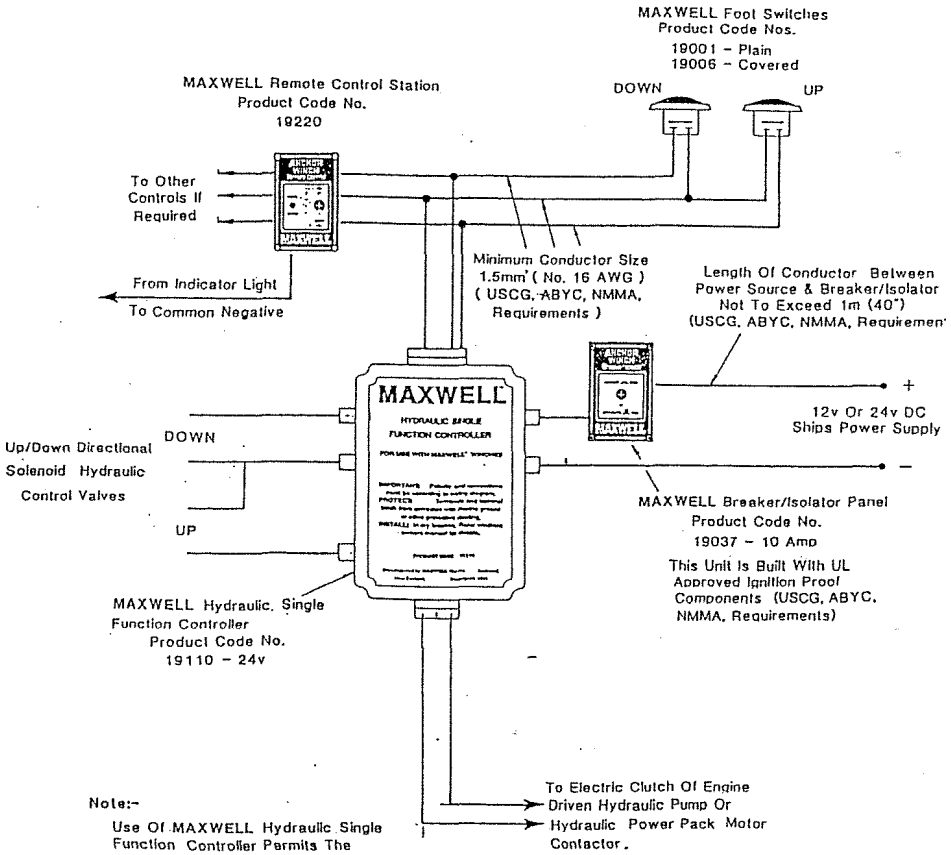
All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

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.



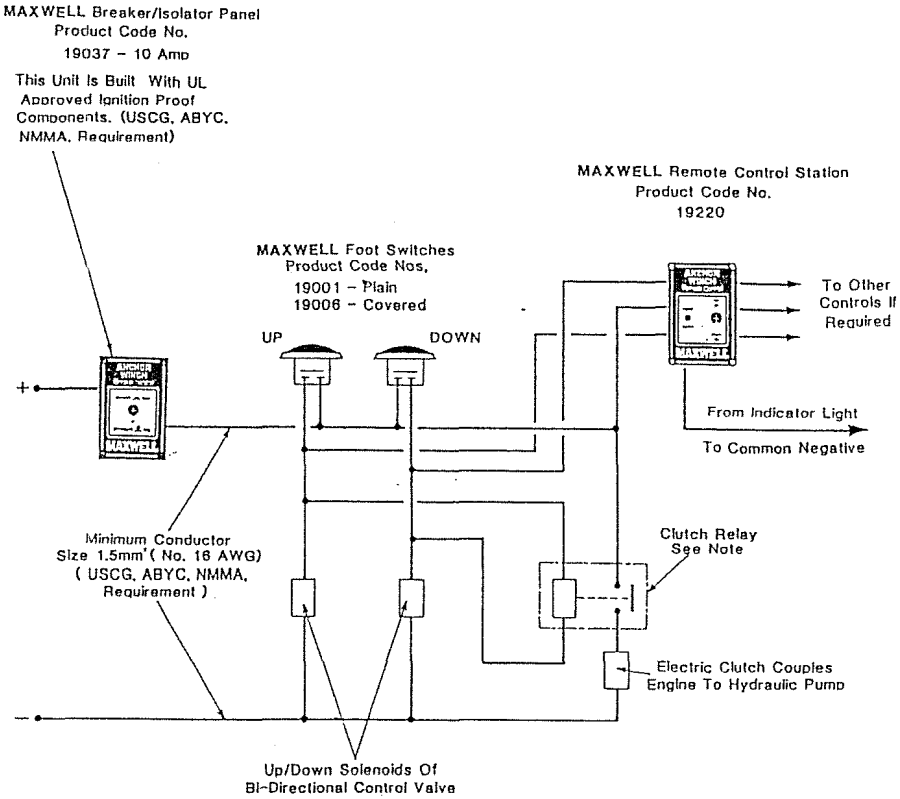
Revision	Change	Made On	Des/Drawn	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	21/7/04	DI/RP	N/A	Wiring Diagram - Typical For Single Direction	P101844
				BVT View		
				N/A		
				Sheet Size / Scale		
				A4 / NTS		
				Sheet 1 of 1		



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 Automatic Clutch Activation Of Engine Driven Pump.

ELECTRIC CONTROL WIRING UTILISING MAXWELL HYDRAULIC SINGLE FUNCTION CONTROLLER



Note:-

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

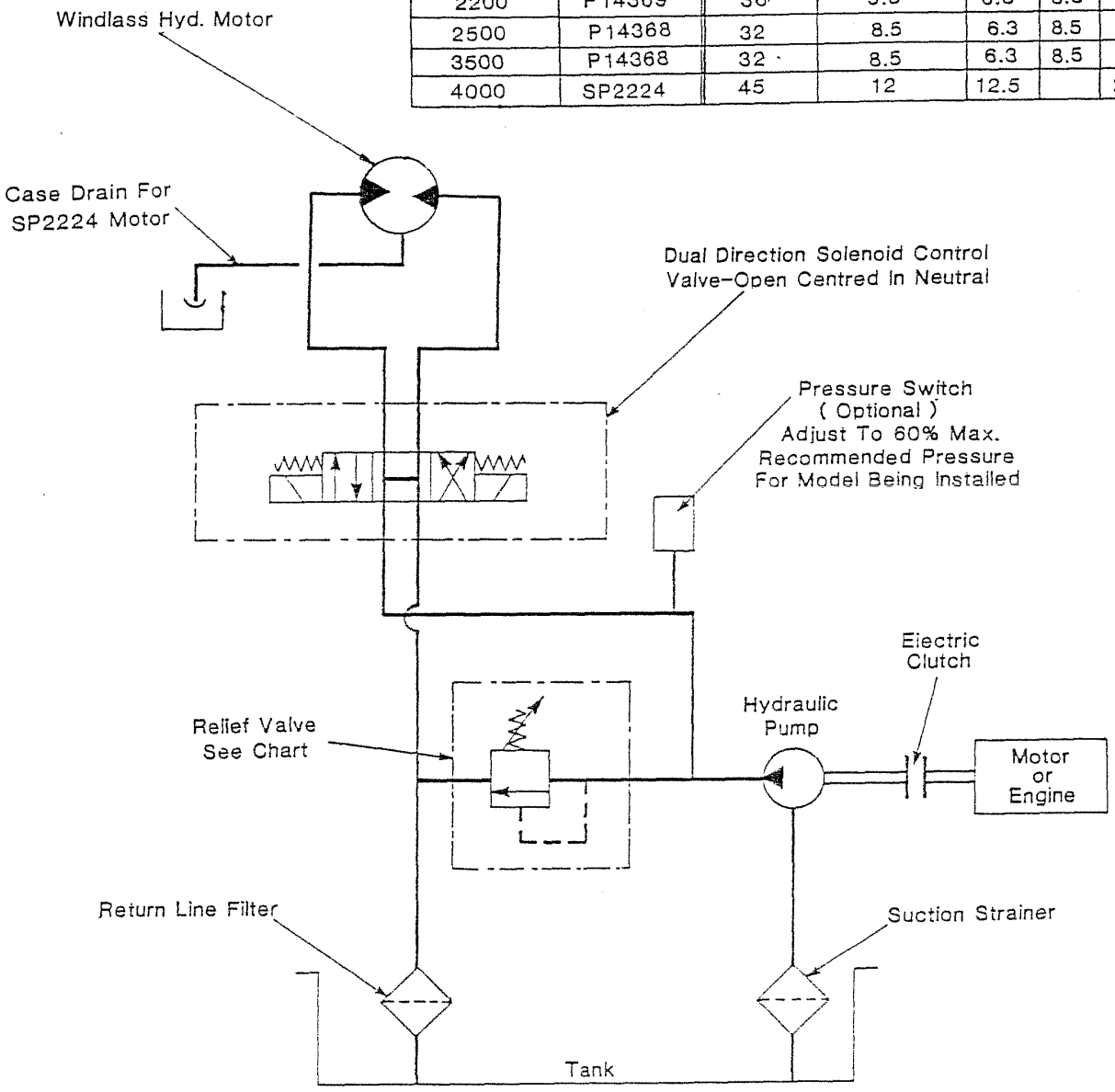
ELECTRIC CONTROL WIRING FOR BASIC SYSTEM

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

MAXWELL AUCKLAND NEW ZEALAND	SCALE	—	TOL UNLESS SPECIFIED
	MATERIAL	—	
ELECTRIC CONTROL WIRING DIAGRAM FOR HYDRAULIC WINDLASSES:– TYPE VW, VWC, VWCLP & HWC	FINISH	—	
	DRAWN	B.J.I.	B 203101 REV 2
	DATE	2-7-90	

✳ See Note 1 Below

HYDRAULIC SUPPLY REQUIREMENTS							
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



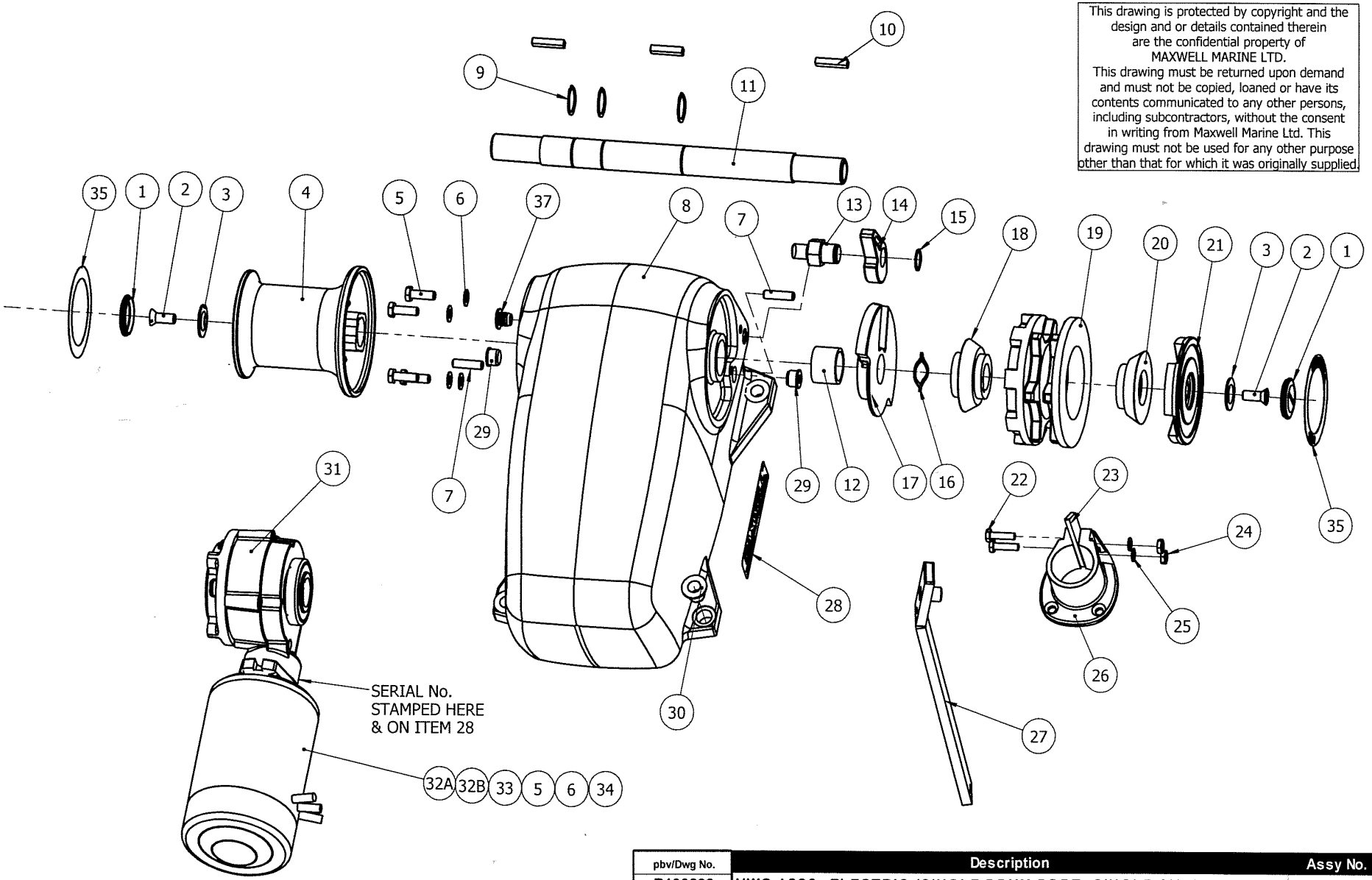
HYDRAULIC SCHEMATIC INSTALLATION
UTILISING ENGINE DRIVEN MAIN PUMP

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.

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



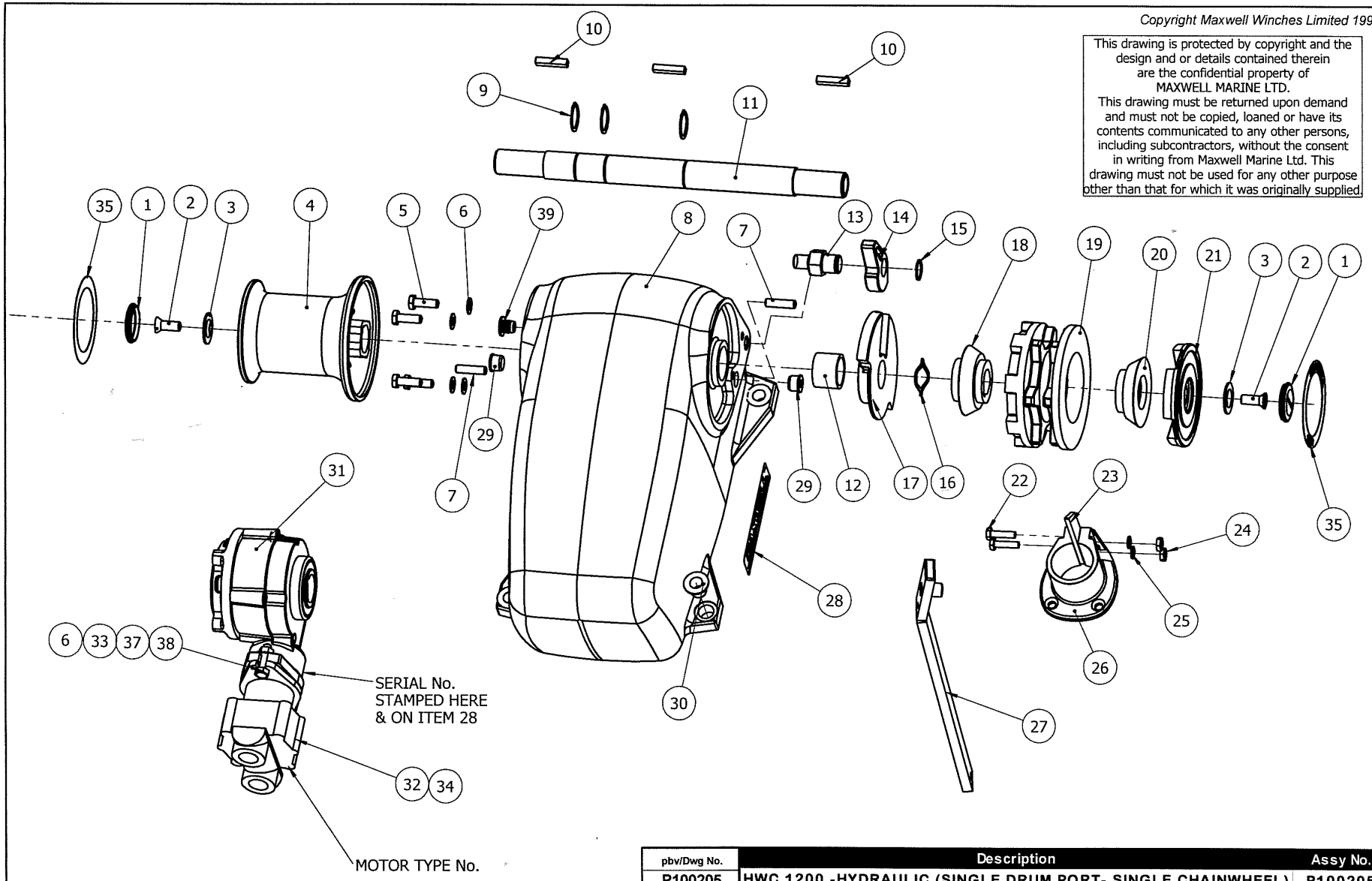
Revision	Change	Made on	Des/Drawn
1.00	INITIAL ISSUE	21/03/2005	DH

pbv/Dwg No.	Description	Assy No.
P100203	HWC 1200 -ELECTRIC (SINGLE DRUM PORT- SINGLE CHAINWHEEL)	P100203
BVT View		
dfted1		
Sheet Size: A4	Scale: 1:5	
Sheet 1 of 1		

HWC1200 ELECTRIC **P100203**

ITEM	PART NO.	DESCRIPTION	QTY
1	D3465	CAP	2
2	SP40	SCREW	2
3	E3467	RETAINING WASHER	2
4	D3437	DRUM	1
5	SP288	BOLT	6
6	SP413	WASHER	6
7	E3480	STOP PIN	2
8	B3496	CASE	1
9	SP878	CIRCLIP	3
10	E3462	KEY	3
11	C3488	MAINSHAFT	1
12	SP663	BUSH	1
13	E3461	PAWL PIN	1
14	E3514	PAWL	1
15	SP871	SPIRAL RETAINING RING	1
16	SP472	WAVE SPRING WASHER	1
17	D3441	EMERGENCY CRANK COLLAR	1
18	E3447	CLUTCH CONE	1
19	C3173	CHAINWHEEL	1
20	E3446	CLUTCH CONE	1
21	D3438	CLUTCH NUT	1
22	SP259	HEX BOLT	2
23	E2260	STRIPPER	1
24	SP319	HEX NUT	2
25	SP412	WASHER	2
26	E2259	CHAINPIPE	1
27	P20041	LEVER	1
28	E3384	LABEL	1
29	E3205	PLUG	2
30	SP622	BUSH	4
31	P12436	GEARBOX ASSY	1
32A	P11165	MOTOR ELEC 12V	1
32B	P11166	MOTOR ELEC 24 V	1
33	SP413	WASHER	2
34	SP530	ROLL PIN	1
35	E3470	LABEL 1200	2
36	-	-	-
37	E3573	PLUG	1

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils



Revision	Change	Made on	Des/Drawn
1.00	INITIAL ISSUE	21/03/2005	DH

pbv/Dwg No.	Description	Assy No.
P100205	HWC 1200 -HYDRAULIC (SINGLE DRUM PORT- SINGLE CHAINWHEEL)	P100205
BVT View		
dfted1		
Sheet Size: A4 / Scale: 1:5		
Sheet 1 of 1		

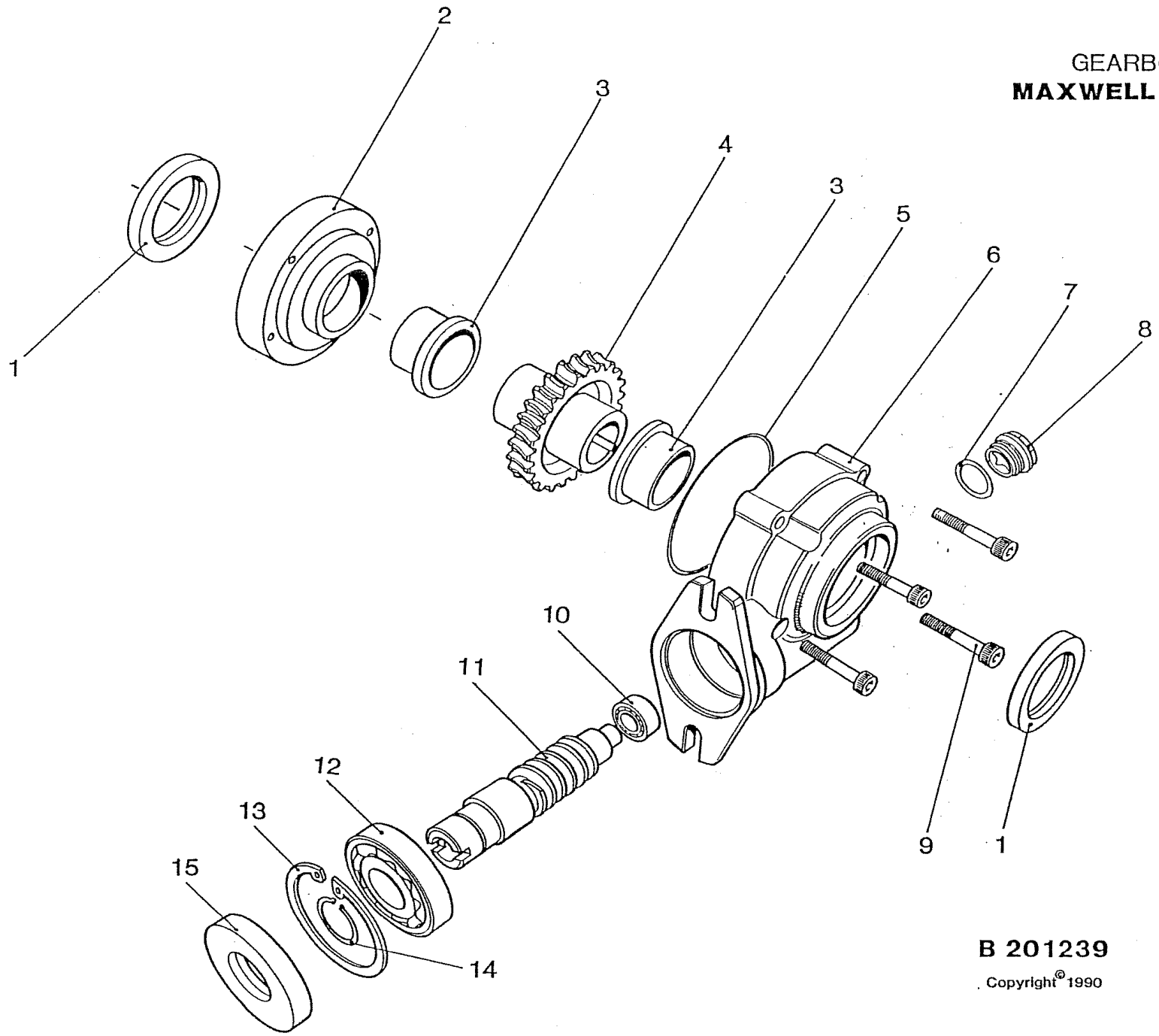
HWC1200 HYDRAULIC P100205

ITEM	PART NO.	DESCRIPTION	QTY
1	D3465	CAP	2
2	SP40	SCREW	2
3	E3467	RETAINING WASHER	2
4	D3437	DRUM	1
5	SP288	BOLT	4
6	SP413	WASHER	6
7	E3480	STOP PIN	2
8	B3496	CASE	1
9	SP878	CIRCLIP	3
10	E3462	KEY	3
11	C3488	MAINSHAFT	1
12	SP663	BUSH	1
13	E3461	PAWL PIN	1
14	E3514	PAWL	1
15	SP871	SPIRAL RETAINING RING	1
16	SP472	WAVE SPRING WASHER	1
17	D3441	EMERGENCY CRANK COLLAR	1
18	E3447	CLUTCH CONE	1
19	C3173	CHAINWHEEL	1
20	E3446	CLUTCH CONE	1
21	D3438	CLUTCH NUT	1
22	SP259	HEX BOLT	2
23	E2260	STRIPPER	1
24	SP319	HEX NUT	2
25	SP412	WASHER	2
26	E2259	CHAINPIPE	1
27	P20041	LEVER	1
28	E3384	LABEL	1
29	E3205	PLUG	1
30	SP622	BUSH	4
31	P12435	GEARBOX ASSY	1
32 *	P14366	HYDRAULIC MOTOR (STD MGG - 200-16)	1
33	SP413	WASHER	4
34	SP530	ROLL PIN	1
35	E3470	LABEL 1200	1
36	-	-	-
37	SP366	HEX NUT	2
38	SP279	BOLT	2
39	E3573	PLUG	1

* OPTIONAL (SEE SPECIFICATIONS)
P14365 MGG - 200-10

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils

GEARBOX ASSY.
MAXWELL



B 201239

HWC1200 GEARBOX ASSY B201239

ITEM	PART NO.	DESCRIPTION	QTY
1	SP724	SEAL	2
2	C3513	SPACER	1
3	E3145	BUSH	2
4	D3584	WORMWHEEL	1
5	SP726	‘O’ RING	1
6	C3133	WORM BOX	1
7	SP720	‘O’ RING	1
8	D3223	SIGHTGLASS	1
9	SP159	SCREW	4
10	SP643	BEARING	1
11	D3400	WORM	1
12	SP642	BEARING	1
13	SP844	CIRCLIP	1
14	SP838	CIRCLIP	1
15	SP721	SEAL	1

Fill the gearbox with Castrol Alpha SP 320 Oil 65 mils