BHW
Bushey Hall Winchmaster
www.bhwgroup.com

FITTING & OPERATING INSTRUCTIONS

AC1000 MK2 SERIES

AC ELECTRIC WINCH

110V or 240V x 1ph, 415V x 3ph

Part Numbers: #10808 (110V), #10809 (240V), #10810 (415V)

CONFORMING TO:
BS EN14492-1 Cranes – Power driven winches and hoists – Part 1: Power Driven Winches

Part No. 12895 / 06.03.25

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INTRODUCTION

Thank you for purchasing an AC1000 Mk2 winch, one of a range of professional AC winches available from the BHW Group Ltd.

This winch is designed for pulling applications only and therefore should **never** be used for any type of lifting application.

PLEASE READ THIS MANUAL CAREFULLY BEFORE INSTALLATION OR OPERATION OF THE WINCH

Those responsible for the installation and the operation of this winch must read and understand this manual. The first section deals with the installation requirements and the second section is for the user and provides information to ensure safe use of the winch.

This introduction also includes information on the British Standard: BS EN14492-1 for winches and the importance of correct product specification, installation and testing to ensure the essential Health and Safety requirements of both the EC machinery directive and the Health and Safety Act 1974 are met.

STANDARDS & BHW GROUP LTD

The British Standard: BS EN14492-1 for power driven winches ensures conformity to both, the essential Health and Safety requirements of the UK Health and Safety at Work Act 1974, and the EN Machinery Directive. Conformity to these standards is the joint responsibility of the winch supplier, the installer and the company operating the machine.

Selecting the correct winch for the application is very important not only from the health and safety aspect, but also to maximise product life and value for money by reducing maintenance costs and vehicle down time.

BHW Group Ltd products are fully compliant and carry a UKCA and CE mark. A Declaration of Conformity is also supplied with each winch. BHW Group Ltd aims to ensure the correct machine is supplied to suit the application and we welcome the opportunity of discussing the proposed application and to offer advice. It will help us considerably if information regarding the maximum and average loads to be lifted or pulled - and approximate frequency of use can be provided.

A pulling winch, such as the AC1000 Mk2, is usually operated intermittently and the factor of safety in the wire rope is generally 3:1 and a wire rope to mean drum diameter* of not less than 10:1.The maximum length of wire rope on the drum is determined by the guideline that when all the rope is wound on, a distance of 1.5 x the wire rope diameter should be remaining from the top layer to the outer edge of the drum flange.

Winches with the potential to apply forces over 1000kg must be load limited to prevent them applying loads above the safe working capacity.

Maximum wire rope length permissible on the drum must leave 1.5x wire rope diameter from the top layer to drum flange.

The standard BS EN14492-1 considers all types of winches used for all applications and suggests guards are fitted if there is a chance an operator may become entangled. It is also important for the safety and ease of operation for the user to clearly see the wire rope wrapping onto the drum to ensure serious bunching and resulting jamming does not occur. Winches can be used in many different applications and the user or installer should carry out a risk assessment to determine any guarding that may be required.

In an application where hand tension is applied to the hook whilst the rope is being wound back on to the drum for storage there is a risk of the hand being pulled into the roller guide or drum. A short webbing strap should be used that is looped onto the hook to prevent the risk of this occurring (see picture on front of manual). These straps are supplied with wire rope provided with new winches and are available as a replacement part (#9867) from BHW Group Ltd, call +44 (0)1482 223 663.

**Mean drum diameter = the drum diameter plus the diameter of the wire rope. ** MBF = the Minimum Breaking Force of the wire rope.*

OPERATOR AND INSTALLER RESPONSIBILITY FOR UKCA & CE COMPLIANCE

1. Mount winch in accordance with instructions.

2. Install 7mm 1960N/mm² grade, 6/19 wire core rope with minimum breaking strain of 34.8kN (3544kgf) Maximum rope length of 40m x 4 layers. This is the maximum rope length permissible to ensure compliance with BS EN14492-1 as this requires a 1.5 x wire rope diameter from the top layer to the drum flange.

3. Attach rope to the drum as per WIRE ROPE INSTALLATION INSTRUCTIONS (page 16).

4. Hook must have a safety latch and a minimum rated capacity of 1.5 Tonne. Use only high tensile grade 80 or 100. These hooks are rated and stamped for lifting and have a safety factor of 4:1. A 1.5 Tonne hook has therefore a minimum yield of 1.5 x 4 = 6 tonne. For pulling applications with a 3:1 factor of safety they are suitable for up to 2 tonne line pull.

5. Load test the winch following installation to check the integrity of the mounting and adjust to ensure the correct load setting is achieved. See page 17.

WINCH INFORMATION

WINCH SPECIFICATIONS

Model	**AC1000 Mk2 AC Winch – either 1ph (110V or 240V) or 3ph (415V) BS EN14492-1 Compliant**
Construction	Die cast aluminium end housings with steel drum
Motor	High torque series wound, 1.5kW for all models
Gearbox	3 stage planetary
Gear Reduction	216:1
Switching	110V/240V via mechanical contactors full voltage in the hand set 415V 3 phase via reversing contactors in the low voltage controls
Wanderlead	Tough, 3 button hand held control with 4.5m lead. Other lengths available on request.
Freespool Clutch	Lever on gear housing to disengage clutch.
Drum Rotation	Clockwise viewed from motor end when pulling in..
Recommended Wire Rope	7mm dia (Max)1960N/mm^2 grade 6 x 19 wire core construction with 3544kgf (34.8kN) minimum braking strain must be used to comply with BS EN14492-1 standards. Recommended length is 30m maximum.
Recommended Hook	1.5 tonne rated with safety latch. Use only high tensile grade 80 or 100 to comply with BS EN14492-1 standards.
Weight	Winch, complete with mounting plate, roller guides and wire rope = 55kg.
Rope to Mean Drum Ratio	10.2:1
Drum Dimensions	76mm diameter x 225mm length. 151mm flange diameter.
Recommended Storage Capacity	30m (Using 7mm dia wire rope).
Roller Guides (optional	Heavy duty 4 way commercial type.
Noise Level	72db
Ambient Temp. Operating Range	-28°C to 60°C
Typical Uses	Production line – movement of loads; Servicing departments – Recovery of machinery for inspection or service; Installation – Positioning and dragging movement of new equipment

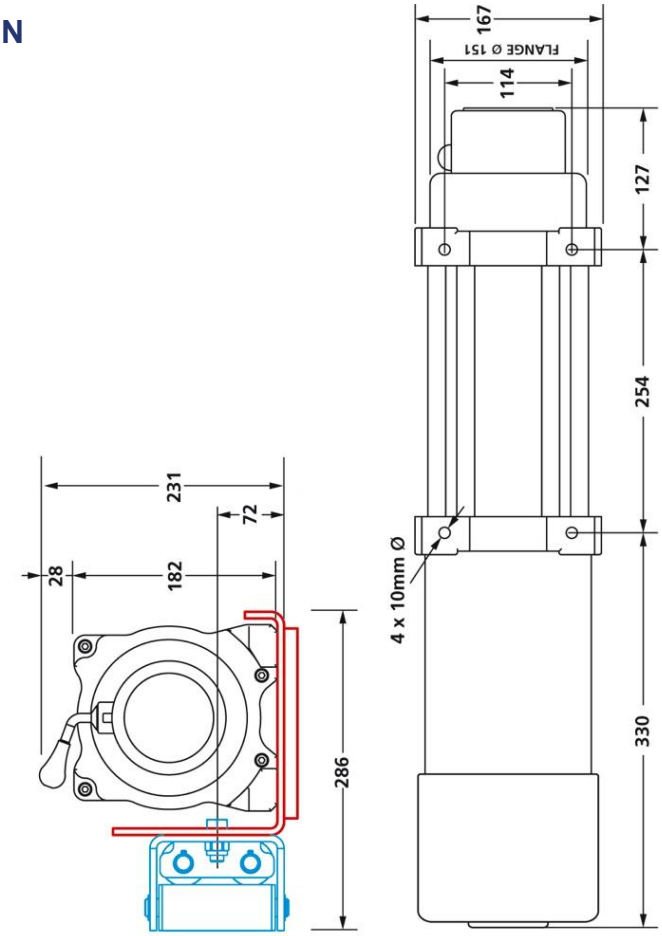
WINCH PERFORMANCE

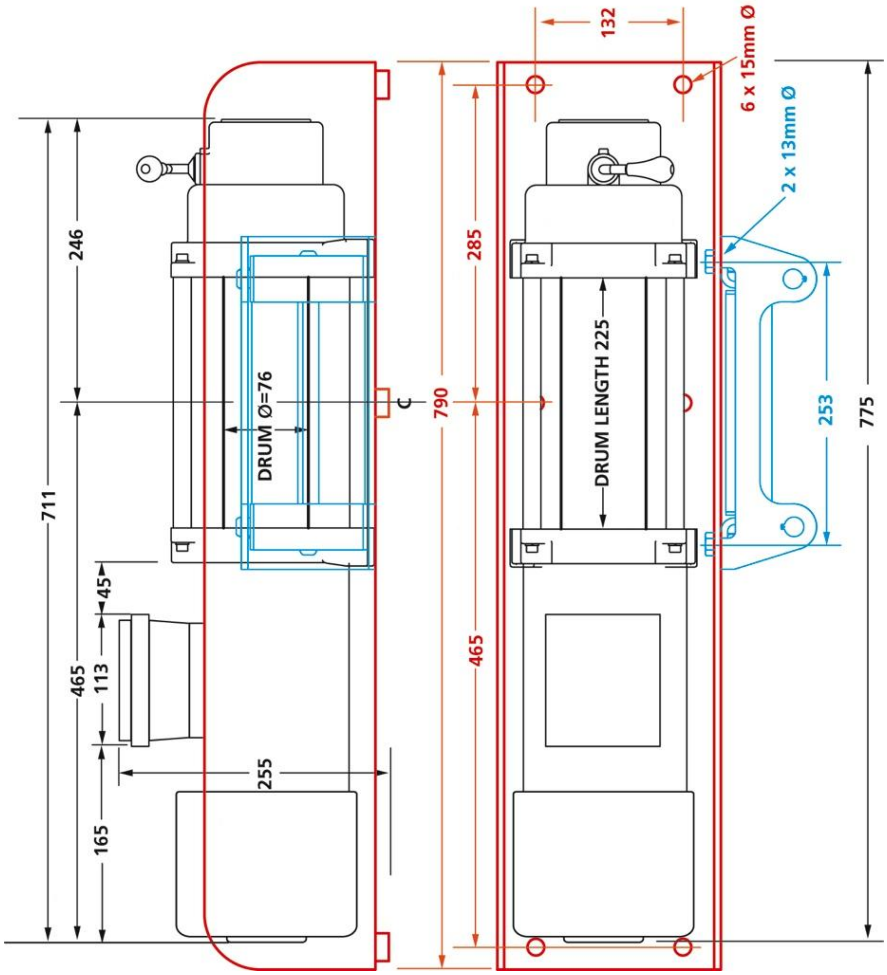
AC1000 Mk2 *110V / 240V / 415V*		**LAYER**			
		1	**2**	**3**	**4**
Maximum Rated Line Pull by Layer	*kN* *kgf*	*9.8* *1000*	*8.0* *844*	*6.9* *731*	*5.9* *644*
Rope Capacity Cumulative by Layer (7mm Dia. Wire Rope)	*m*	*7.6*	*16.7*	*27.2*	*30*
*Line Speed**	*m/min*	*3.1*	*3.4*	*3.8*	*4.2*

** Based on recommended 7mm diameter wire rope, 1960N/mm^2 grade, 6 x 19 wire core construction*

WINCH INFORMATION

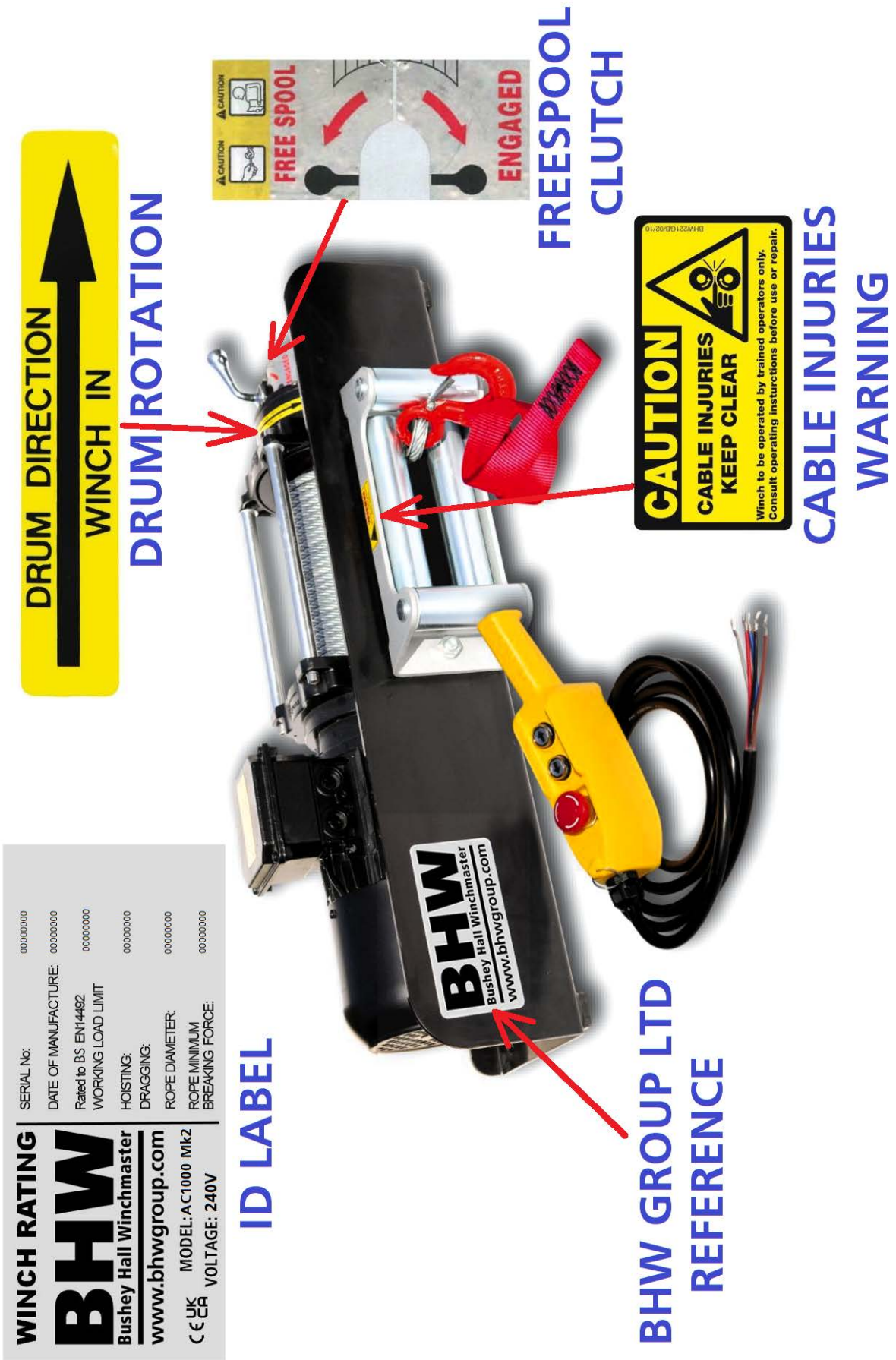
WINCH DIMENSIONS





WINCH INFORMATION

WINCH LABELS



INSTALLATION

GENERAL INSTALLATION NOTES

The AC1000 Mk2 winch has been built to a BHW Group Ltd specification to comply with BS EN14492-1. These winches are tough and will provide many years of reliable service if being used for the correct application.

Like all machines they must be installed correctly in accordance with these fitting instructions (pages 8-15) and subsequently the user must also adopt the correct procedures as those included in the section headed operating instructions (pages 16-18).

Before installing the winch, it is important to work out what load bearing may be put into the adjacent area. A suitable support must be fitted across the area to support the load. You are advised to consult a qualified builder or structural engineer to determine these factors.

It is also important to fit a fused isolation switch in the power supply line at the point of operation. A lockable switch may be deemed necessary if there is a risk of unauthorised personnel gaining access to the working area.

WINCH MOUNTING

The winch must be securely mounted on a flat surface so that the three major sections (the motor end, cable drum and gear housing end) are properly aligned. It is advisable to use the mounting bracket specifically designed for the AC1000 Mk2 that includes pre-drilled holes to ensure correct alignment.

The mounting surface must be flat (level support) within 0.38mm and sufficiently stiff to resist flexing. Winch securing holes must be kept in alignment and not oversized.

Using the standard mounting bracket with the winch pre-fitted.

The universal winch mounting plate for the AC1000 Mk2 series from BHW Group Ltd (part #11239) is available for the AC1000 Mk2 and requires the fixings as listed below.

FIXINGS

Winch to Mounting Plate requires:
4x M10 x 35mm high tensile (8.8) BZP bolts, 4 x M10 plain square full nut BZP
4x M10 plain washer BZP, 4 x M10 spring washer BZP

Roller Guide to Mounting Plate requires:
2x M12 x 25mm high tensile (8.8) BZP bolts, 2 x M12 plain full nut BZP
2x M12 plain washer BZP, 2 x M12 spring washer BZP

Mounting Plate to level support requires:
6x M12 high tensile (8.8) BZP bolts – NB: length dependant on fit (must be a minimum of 5mm length of the bolt thread turned through the Nylock insert after tightening)
6x M12 Nylock full nut BZP, 12 x M12 plain washer BZP – 2 per bolt

(BZP = Bright Zinc Plated)

Please refer to the winch dimensions which detail winch, mounting plate and roller guide measurements on the previous page.

INSTALLATION

ELECTRICAL CONNECTIONS & OPERATIONS

Always ensure the correct voltage corresponding to the winch electrical system is used. Electrical installation should be carried out by a qualified electrician.

Correct attention to the wiring of the winch is essential for correct functioning and safety.

Any electrical inspections or repairs must be carried out by qualified technicians.

ELECTRICAL SAFETY

According to the Health and Safety Executive, each year there are approximately 1000 work accidents involving electric shock or burns. Around 30 of these are usually fatal.

Non fatal shocks can cause severe or even permanent injury. Improperly installed electrical equipment can also cause related accidents in the workplace.

Electricity at Work Regulations (1989 requires adequate precautions to be taken against the risk of death or injury from electricity during work, at or near electrical installations.

Power supply must be provided to the correct voltage specification – power to be provided in all cases (whether 1ph or 3ph) at 50Hz, with neutral and earth rated according to the winch motor involved.

Please determine the electrical requirements for the application prior to any work as insufficient installation standards will result in damage to the winch and possibly put operatives in danger.

The winch is directly powered by the mains supply in the work area. A suitable fused isolator switch must be installed in the incoming power supply to provides additional facilities to shut down the power to the winch, or problems due to an overload of the winch.

A test weight should be fitted to the wire rope before setting amp limit switch parameters, this will allow final adjustments and tests to be carried out reducing the possibility of damage to the winch.

EMERGENCY STOP SYSTEMS

It is a requirement under BS EN14492-1 and the Machinery Directive that all machines have Emergency Stops.

You are advised that additional emergency stop facilities and adequate isolation / fusing facilities should be built into the installation of an AC1000 Mk2 **in addition** to the standard Emergency Stop supplied as part of the wanderlead control.

BHW Group Ltd can offer a comprehensive range of Emergency Stop and isolator equipment as required. It is ultimately the responsibility of the person installing the winch to carry out a risk assessment to decide and provide additional Emergency Stops, isolators and fuse restriction suitable for the application.

Please contact BHW Group Ltd sales for Emergency Stop and Isolator options on +44 (0)1482 223 663.

INSTALLATION

PENDANT CONTROLS

The AC1000 Mk2 series of winches are available, as stated, in 110V, 240V (x 1ph) or 415V (x 3ph) options.

The 110V and 240V options are supplied as standard with a 2.5m wanderlead pendant which operates on full voltage.

The 415V version (3ph) is supplied as standard with a low voltage (24V) voltage control system which links to the winch.

The 1ph versions of this winch also has a low voltage option (24V) available on request.

BHW Group Ltd emphasise that changes to the supplied pendant / wanderlead control should be suitable to the model being installed, and fitted by a fully qualified installer to ensure correct installation and operation of the winch. Failure to adhere to these requirements can cause damage to equipment or personal injury - and will invalidate the warranty of the product.

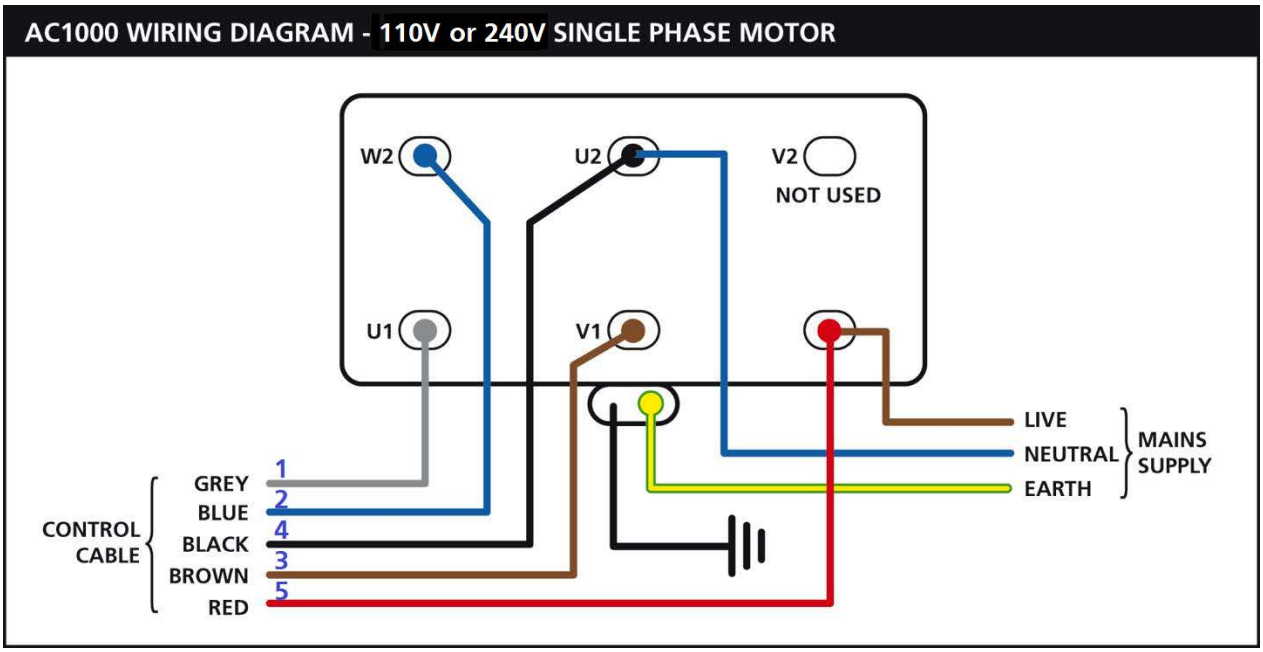
Above are shown examples of the 3ph and 1ph low voltage systems available. Please refer to the wiring diagrams that follow in this manual for installation.

INSTALLATION

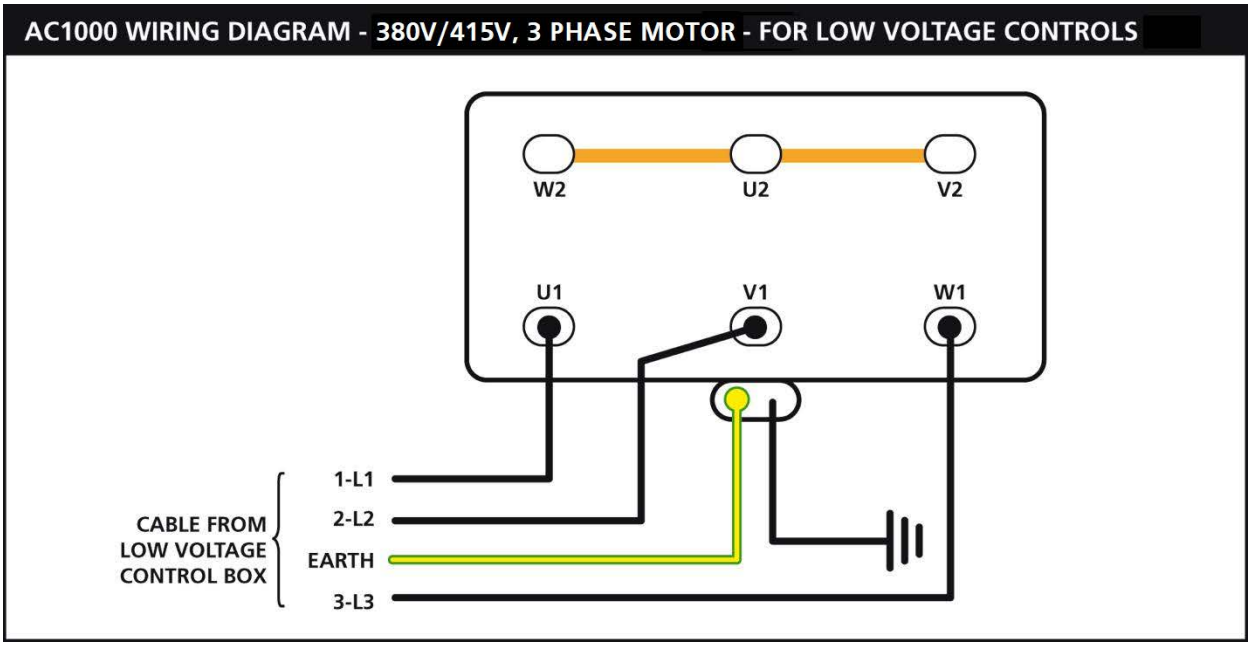
WIRING DIAGRAMS

The following five pages show circuit control diagrams for the AC1000 Mk2 series and the wanderlead (pendant control).

SINGLE PHASE MOTOR



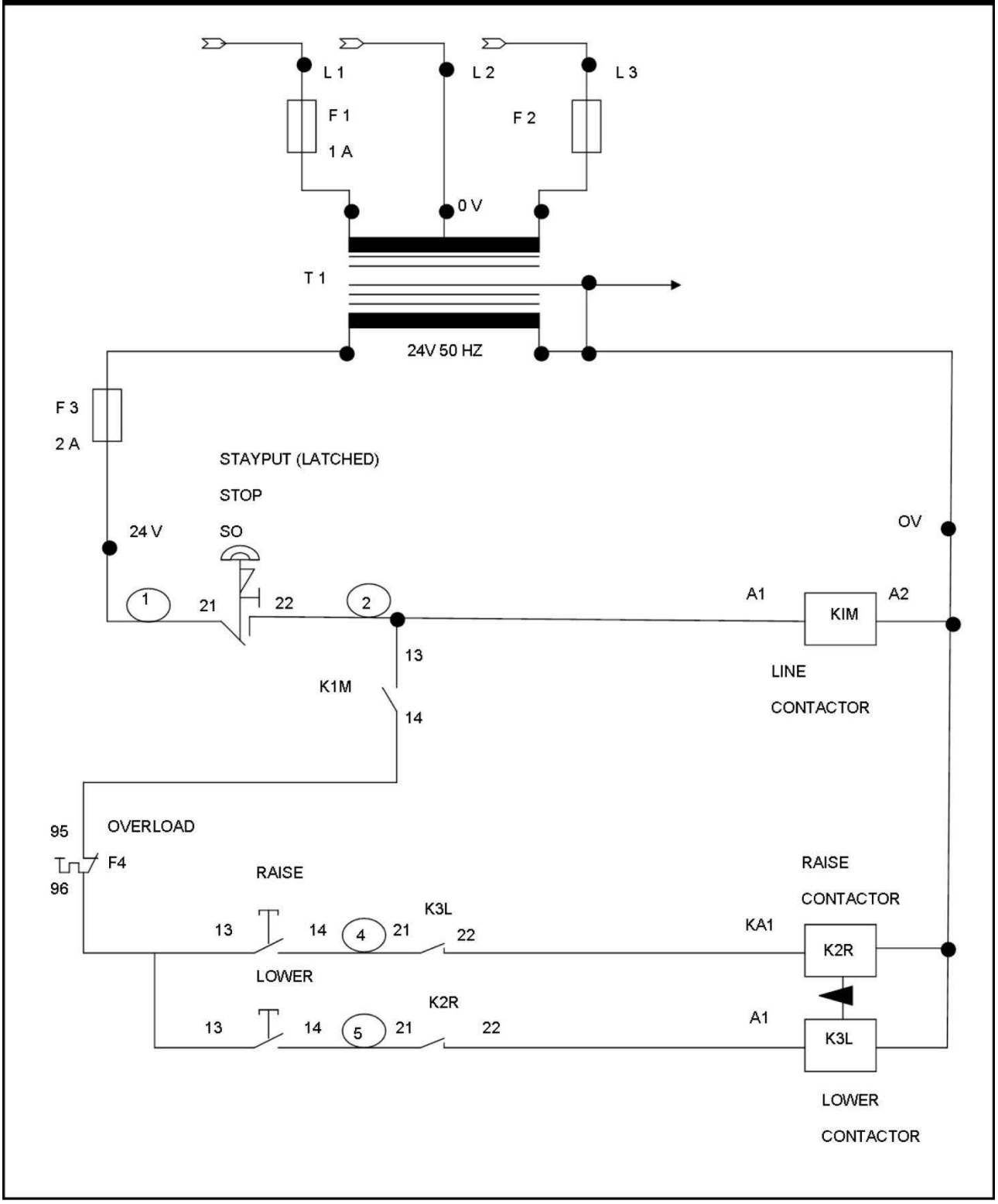
3 PHASE MOTOR – LOW VOLTAGE CONTROL



INSTALLATION

CONTROL CIRCUIT

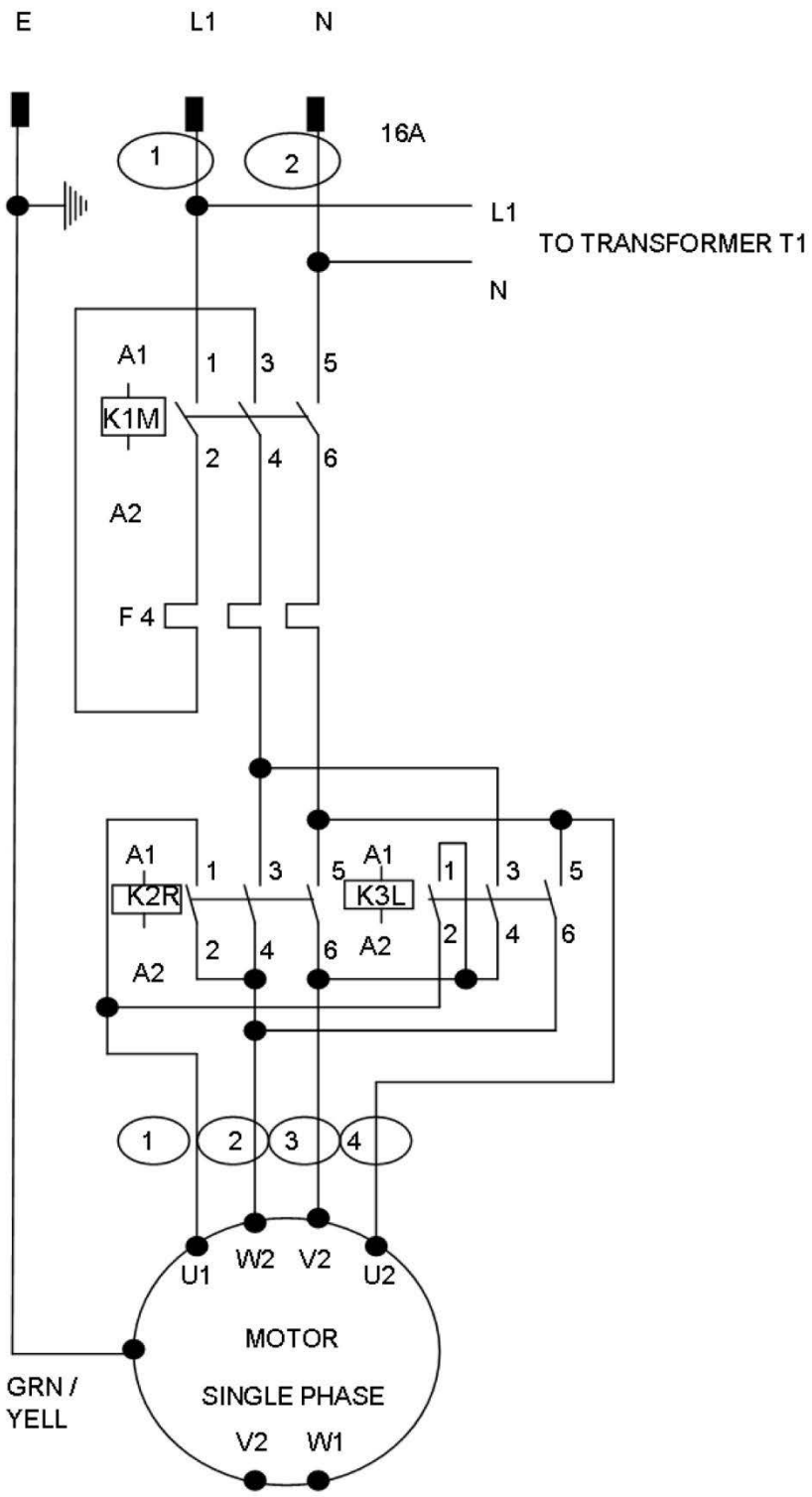
AC1000 WIRING DIAGRAM - 110V, 240V, 415V CONTROL CIRCUIT



INSTALLATION

110V / 240V LOW VOLTAGE CONTROL BOX

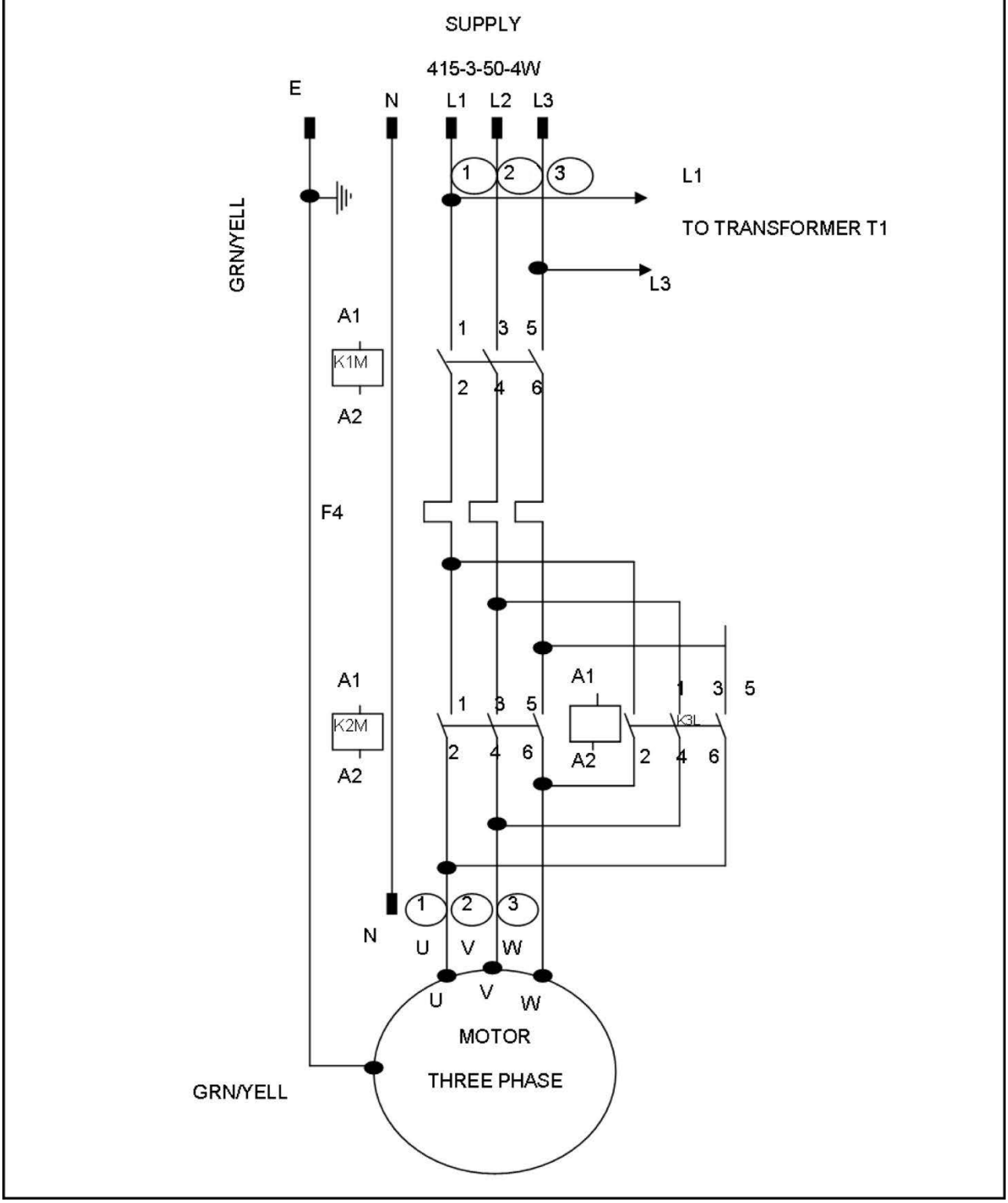
AC1000 WIRING DIAGRAM - 110V or 240V LOW VOLTAGE CONTROL BOX



INSTALLATION

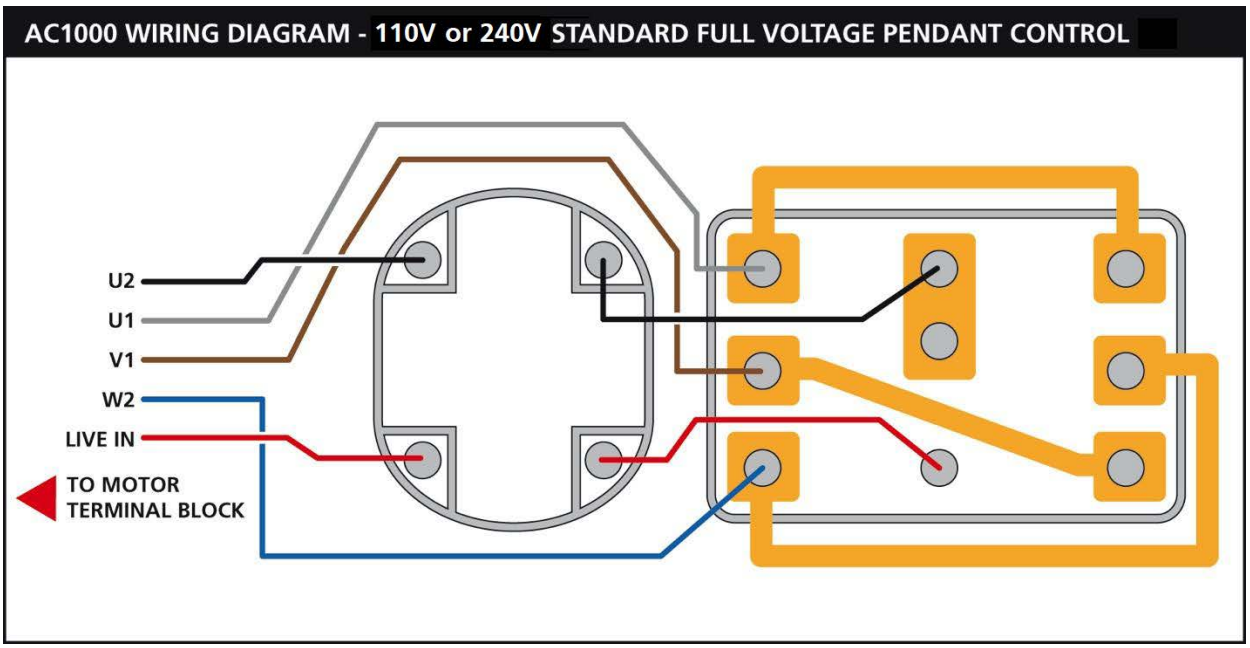
380V / 415V LOW VOLTAGE CONTROL BOX

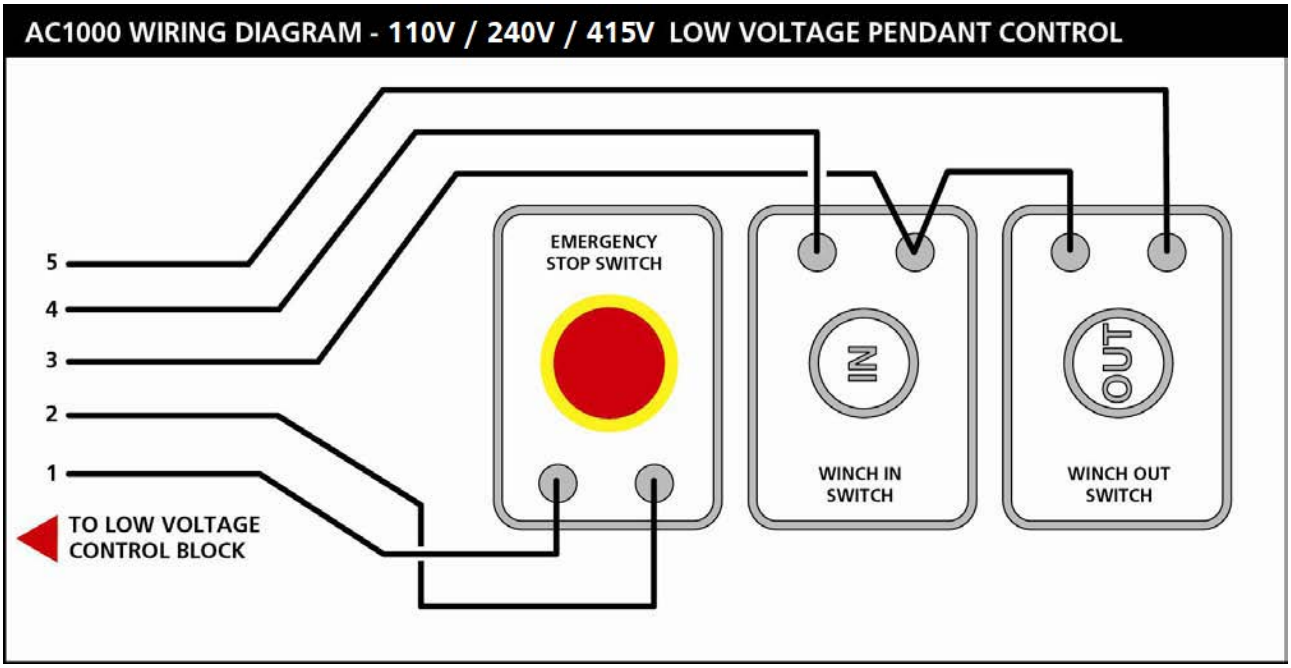
AC1000 WIRING DIAGRAM - 380V or 415V LOW VOLTAGE CONTROL BOX



INSTALLATION

WANDERLEADS





INSTALLATION

OPERATIONAL OVERVIEW

The electric motor on the winch drives the drum via the integral planetary gearbox.

The winch is provided with a freespool clutch enabling the drum to be disengaged for paying out the wire rope. The clutch must be fully engaged for any electrical operation of the winch.

The winch has an automatic brake which will apply when the operator release the control button and ceases either winching in or out. The automatic brake will also operate in the event of a power supply failure.

The winch is fully capable of winching in or out using the wanderlead control as the task dictates. The wanderlead also has an emergency stop button which will shut down the winch instantly. The emergency stop can be released by turning the stop button clockwise, in order to resume operation.

WINCH ROTATION VERY IMPORTANT

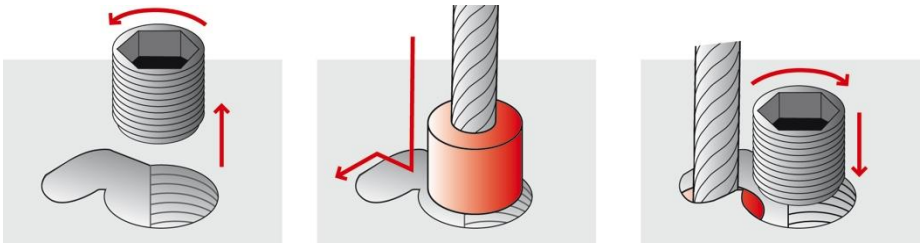
The rotation of the drum when winching in must be correct as the load holding brake is only operational in one direction. **Viewed from the motor end, the drum rotation is clockwise when winding the rope onto the drum.**

TESTING

After the installation is complete, a proof load test of 125% of the rated load should be carried out to ensure correct installation before the winch goes into service.

WIRE ROPE INSTALLATION

Unwind the new wire rope by rolling it out along the ground to prevent kinking. Position the cable drum so the large 10.3mm diameter hole in the drum flange is approximately on top. Remove grub screw from drum and insert cable end with plug into aperture, sliding plug sideways and down (see diagram below). Replace flange screw to secure rope end into drum. Keeping tension on end of rope, run the winch in the ‘reel in’ direction and spool all the rope onto the rope drum, taking care to form neatly wrapped layers.



Wire ropes for testing purposes are available from BHW Group Ltd if required.

SAFETY PRECAUTIONS

PLEASE READ THIS CAREFULLY BEFORE OPERATING THE WINCH.

Respect for a winch and common sense in its operation, will ensure complete safety and reliability. Do not underestimate the potential danger in winching operations. Be aware of the basic dangers so you can avoid risk of accidents and unnecessary damage to the winch, the items being moved or the surrounding environment.

The following safety precautions must be observed at all times whilst using the winch.

Keep yourself and others at a safe distance to the side of the wire rope when puling under load.

Never step over, stand near or guide a rope under tension. Always use heavy-duty gloves when handling the wire rope to protect against cuts or possible burns.

Take care of the wire rope. Check regularly for signs of damage or stretch in the form of broken strands or severe kinks along its length. If there are more than 10 strands broken in any 25mm of the rope's length then it will be significantly weakened and must therefore be replaced.

Wear and tear can be prevented by regular application of rope dressing available in aerosol form from your winch supplier. Oil and grease should never be used.

Always apply tension to the wire rope (using the safety hook webbing strap attached to the hook) to ensure that the wire rope is rewound neatly and evenly on to the drum. Loose coils or uneven wrapping are dangerous and can result in trapping or snatching when next used - and also damage to the wire rope or the winch.

Do not drive the vehicle to pull a load on the winch wire rope, e.g. as a tow rope, Any resulting shock load could break the rope or damage the winch.

If the winch is being operated at maximum capacity, drape a heavy blanket or coat over the wire rope, halfway along its length. The blanket will reduce the speed of a snapped rope.

When recovering a vehicle, the winch hook should be attached to the towing hitch, if available, or to a strap or chain around a chassis leg or cross member. **NEVER** anchor the winch hook onto bumpers, or shipping / transit anchorage.

Do not allow the load to 'snatch' during a pull, as this can momentarily double or even treble the load on the rope.

Try to position either your vehicle or the anchor point to ensure as straight a pull as possible. Use a snatch block if it is necessary to turn any corners with the rope.

When attaching the hook to the load, always double check that the hook is secure and the safety catch is fully closed. Remember that if the hook breaks away under tension, serious injury can result, as the hook will travel through the air at speed.

A minimum of five wraps of rope around the drum is recommended to hold the load.

NEVER hold the safety hook to rewind the winch – use the safety hook webbing strap provided.

WINCH RATING

The winch rating on the AC1000 Mk2 model refers to its maximum rated line pull, measured as the force being applied to the winch in a horizontal plane. As in the case of all winches, this refers to the first layer of rope on the drum.

In most cases, when the winch is being used, there is no way of accurately determining the exact pull being applied. It is important, however, to try and establish that it is within the working capacity of both the winch and wire rope and this can be done by considering the following formulae which applies for gradients up to an angle of 45°. For wheeled vehicles, the pull required to move the load equals:

$$\frac{W}{25} + \frac{(W \times Angle\ of\ Gradient)}{60}$$

Where **W** = load in tonnes - and angle of gradient is in degrees.

EXAMPLE
If **W** is the rolling load at **2** tonne and is being pulled up a gradient of 15°, the force on the rope is:

$$\frac{2}{25} + \frac{(2 \times 15)}{60} = 0.08 + 0.50 = 0.58T$$

Remember the winch pulling capacity reduces as the number of layers of wire rope increase on the drum.

If it is necessary to work beyond the limits of either the winch or wire rope, it is essential that a snatch block be employed, which will enable the line pull to be nearly doubled. If you should have any queries regarding the maximum load applied in a particular application, please do not hesitate to contact us and we will be pleased to offer our assistance.

TO OPERATE WINCH

Operators must firstly become familiar with the winch operating system with no loading applied.

Note the position of the isolator switch in the power supply and turn it on. All systems must by law include at least one emergency stop and these should be located in an easily accessible position and this should be noted. Plug in the wanderlead control and with the winch under no load but with hand tension applied through the strap attached to the hook power out and then in several times.

Now operate the freespool clutch to both see and feel the full engagement and disengagement position. With the winch disengaged freespool wire rope of the drum and then re-engage freespool.

When you are familiar with the operating features turn on the isolator and plug in the wanderlead control. The winch can be powered both in and out. The load is automatically held safely when control button is released.

The best way to become acquainted with how your winch operates is to make test runs. Plan your tests in advance. Remember that you hear your winch as well as see it operate. Come to recognise the sounds of a light steady pull, heavy pull, and sounds caused by load jerking or shifting. Gain confidence in operating your winch and its use will become second nature to you.

The uneven spooling of wire rope whilst pulling a load, is not a problem, unless there is a pile up of rope on one end of the drum. If this happens, reverse the winch to relieve the tension on the rope and move your anchor point further to the centre of the load. After the job is complete, you can unspool and rewind the wire rope neatly. Always switch off the power supply isolator switch after use and always use the webbing strap attached to the safety hook when rewinding rope back onto the drum to prevent potential injury to hands from the roller guide.

FREE SPOOLING

To release clutch, power out winch until tension is released from cable. Turn the control lever on side of casing and turn 90º. To re-engage, turn lever back through 90º. Ensure that handle is fully engaged before imposing load on winch.

CAPACITIES

AC1000 Mk2 winches are rated at 1000kg (9.8kN) and this refers to its safe working load, measured as the force being applied to the winch in a horizontal plane. As in the case of all winches, this refers to the first layer of rope on the drum. The winch should be tested to 125% of this capacity upon completion of installation.

MAINTENANCE

REGULAR MONTHLY MAINTENANCE

Externally:
The winch should be kept clean in order to prevent any build up of corrosion on external working parts.

Inspect roller guides for grooving and if excessive, wire rope life will be reduced. Worn guides should be replaced to ensure wire rope is not damaged.

- Check winch for external damage.
- Check winch mounting for distortion and re-tighten mounting bolts if necessary.
- Operate free spool clutch mechanism to ensure correct operation, giving full engagement and disengagement.
- All external-moving parts should be lubricated with lightweight oil.
- All electrical connections and wiring should be inspected for loose connections, corrosion or fraying.
- Check the tie bars that hold the winch in alignment replace if bent or broken.
- Check the emergency STOP control to ensure it functions correctly by operating the winch and pushing the STOP button.

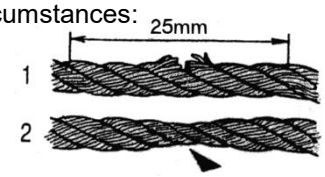
CARE OF THE WIRE ROPE

NOTE: ISO 4309:2004/2010 – WIRE ROPES DIRECTIVE
ISO 4309:2004 / 2010 details guidelines for the care, installation, maintenance and examination of wire rope in service on winches, hoists and cranes, and enumerates the discard criteria to be applied to promote the safe use of the machinery. It is important that these guidelines for safe care, installation and ultimately disposal of wire ropes is strictly adhered to according to this directive.

It is most important that the wire rope is inspected on a regular basis, for kinks, flat spots, broken strands and other damage, and if necessary the damaged sections should be cut away and the rope reattached or completely replaced.

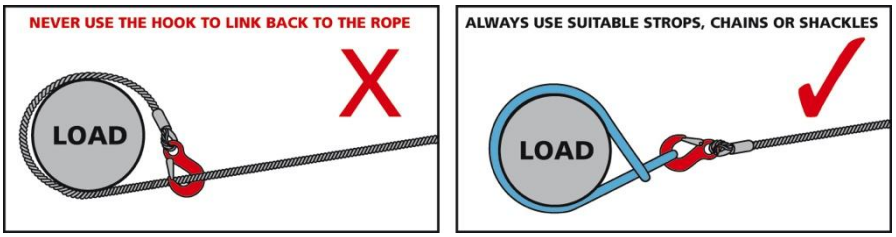
Check both the rope and the hook and replace under any of the following circumstances:

- 10 strands of rope or more broken with a space of 25mm (See fig.1).
- Rope shows visible signs of wasting (See fig.2).
- Deformed or excessively corroded rope.
- Twisted rope.
- Bent rope.



A good habit is to rewind the rope onto the winch drum after it has been used, so that it is evenly layered. To do this, rewind keeping the rope under tension. Normally the tension can be applied by hand – wear gloves.

Under no circumstances wrap the wire rope around the load being recovered and then attach the hook back on to the rope. This will result in serious rope damage or breakage. Always employ a chain or webbing strap from the hook to the load.



- Wire rope and hook must be replaced if damaged.
- If the winch is not being used on a regular basis it should be powered in and out from time to time to minimise corrosion of the internal motor components that may occur due to condensation. Energising the motor will generate heat, which will help dissipate any moisture.

WIRE ROPES ARE NOT COVERED BY WARRANTY.

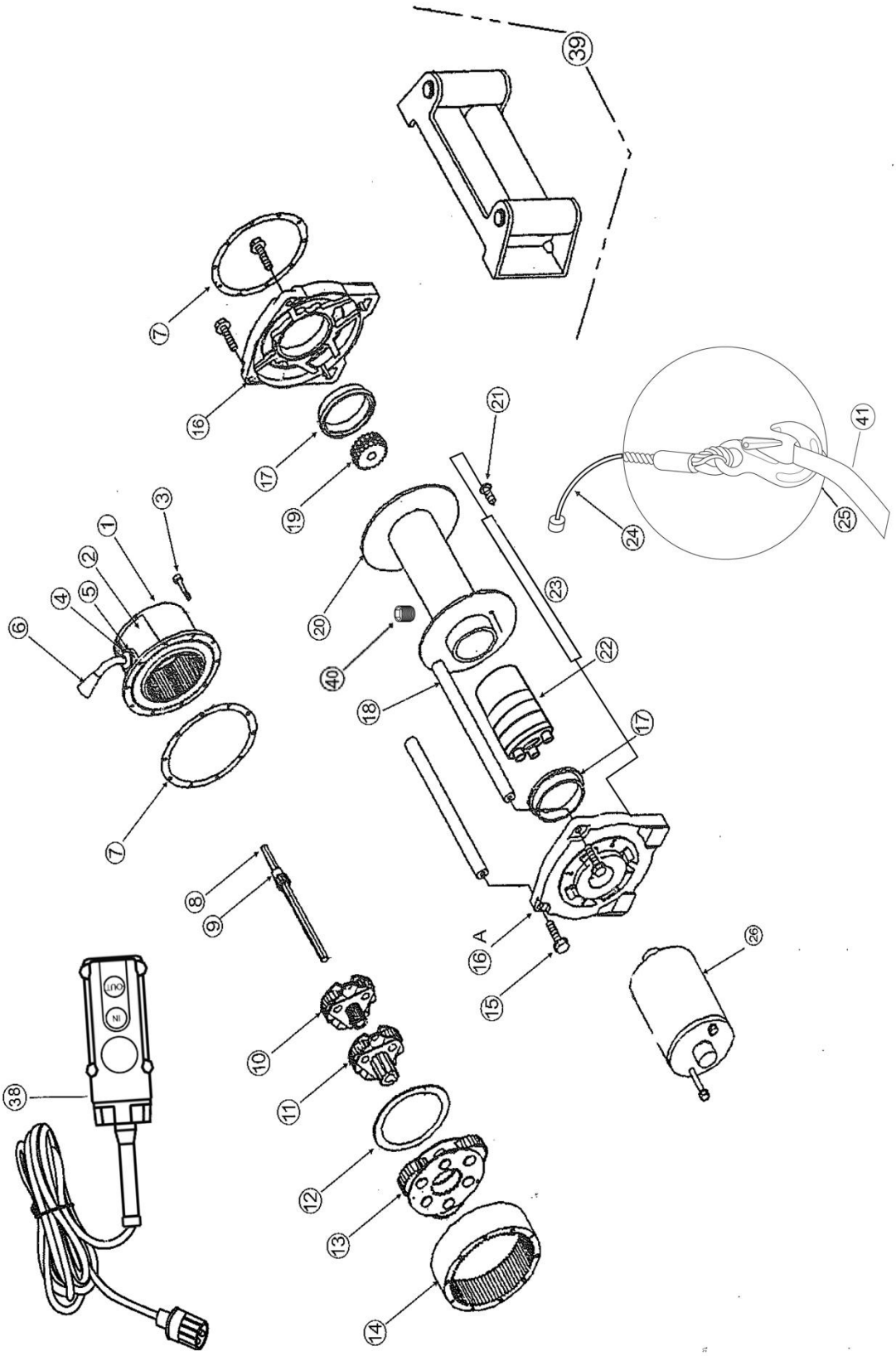
WINCH PARTS

SPARES

If it becomes necessary to obtain replacement parts, refer to diagram and list shown on pages 21 and 22. Please contact us quoting serial numbers if possible and model number.

BHW Group Ltd reserve the right to change specifications without notice.

PARTS DIAGRAM



WINCH PARTS

PARTS LIST

Item	Part Number	Description	Quantity
1	109195	End housing, assembly	1
2	10694	Decals label 'free spool'	1
3	10695	Socket head cap screw	10
4	10696	Detent screw	1
5	10697	O ring	1
6	10698	Clutch Lever	1
7	10699	Gasket	2
8	10700	Drive shaft with retaining ring.	1
9	10701	Sun gear	1
10	10702	Carrier assembly, stage 1	1
11	10703	Carrier assembly, stage 2	1
12	10704	Thrust bearing	1
13	19913	Carrier assembly, stage 3	1
14	10706	Ring gear	1
15	10707	Flange head cap screw M8	4
16	10708	Drum support, gear train	1
16A	10709	Drum support, motor	1
17	10710	Drum bushing	2
18	10711	Tie bar top M8 thread	2
19	10712	Transmit gear	1
20	10713	Drum assembly	1
21	10714	Flange head cap screw M6	4
23	10716	Tie bar bottom M6 thread	2
24	10825	Wire rope 7mm x 15m 1960N 6x36 with hook	1
24B	10826	Wire rope 7mm x 23m 1960N 6x36 with hook	1
25		Safety hook 1.5T alloy (comes with the above ropes)	1
26	12511	110V / 240V dual motor	1
26B	10814	415V motor	1
38	2194	3m Pendant control standard 1ph only	1
38A	109632	4m Pendant control standard 1ph only	
38B	3401	Low voltage controls standard 3ph only.	1
39	2416	roller guide	1
40	10718	Grub screw / drum plug M20 x 18mm. 2.5 pitch	1
41	9867	Wire rope safety hook webbing strap	1

Note, please ensure the correct voltage motor part number is specified.
(the 110V and 240V versions are the same, dual voltage model)

TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSES	CORRECTIONS
Clutch inoperative and will not rotate	Dry gearbox and mechanism	Strip gearbox, clean and regrease
Cable Drum will not freespool	**1.** Winch not mounted squarely, causing end bearings to bind drum **2.** Drum bearing is dry	**1.** Check mounting, refer to Winch Mounting section - Page 8 **2.** Strip, clean and regrease
Winch will not hold the load	**1.** Excessive load **2.** Worn or damaged brake	**1.** Reduce the load or double the line using snatchblock **2.** Repair or replace brake
Motor runs in one direction only	Broken wire or bad connections	Check for loose connections, including wanderlead control
Motor runs extremely hot	**1.** Long running period at high loading **2.** Damaged motor **3.** Damaged brake	**1.** Cooling off periods are essential to prevent over heating **2.** Replace motor **3.** Replace brake
Winch runs in reverse	Motor wire are reversed	Check wiring
Motor will not operate	**1.** Isolator switch not turned on **2.** Fuse has blown **3.** Break in power lead or extension socket **4,** Inoperative motor **5.** Loose connections **6.** Emergency Stop button depressed	**1.** Turn on isolator switch **2.** Replace fuse **3.** Repair or replace wiring **4.** Check for voltage at armature post, replace motor **5.** Check all power lead connections are tight **6.** Check, release as necessary
Motor runs but drum does not turn	**1.** Clutch not engaged **2.** Drive shaft damage	**1.** Engage clutch **2.** Repair or replace drive shaft

WARRANTY

BHW Group Ltd warrants each new winch and ancillary equipment supplied against factory defects in material and workmanship for one year from date of purchase.

The responsibility for removing the winch or ancillary equipment is the owner's together with its return, transportation prepaid to BHW Group Ltd.

BHW Group Ltd will, under this warranty, without charge repair or replace at its option, parts, which on inspection are deemed to be defective. The loss of use of the produce, loss of time, inconvenience, commercial loss or consequential damages are not covered.

Warranty does not apply where the product has been tampered with or altered in any way, or where the serial number or date stamp has been defaced, altered or removed, or if in the view of BHW Group Ltd the damage or failure occurred from misuse, negligence or accident.

THIS WARRANTY EXCLUDES THE WIRE ROPE

BHW Group Ltd reserve the right to change the design of any product without assuming any obligation to modify any product previously supplied.

Winches or equipment returned under warranty should be despatched to BHW Group Ltd service department at the address shown below, with full name and address of sender, a statement detailing the defect and proof of purchase.

BHW
Bushey Hall Winchmaster
www.bhwgroup.com

Service Department
BHW Group Ltd
6 South Orbital Trading Park
Hedon Road, Hull HU9 1NJ

Telephone: +44 (0)1482 223 663
Email: sales@bhwgroup.com
Website: www.bhwgroup.com

AC1000 Mk2 VOLTAGE……..

SERIAL NUMBER……..……..……

DATE OF PURCHASE……..……..……..