

BC3500 Trailer Winch



BC3500 Owners / Installation Guide

model

BC3500ATV

BC3500CP

BC3500CPR

**Read and understand guide before
installation and use of BC3500**

Introduction BC3500

Thank you for choosing a BC3500.

Please read this owner's manual to fully understand the product and provide you with safe and reliable performance.

The BC3500 is a compact, powerful, high performing and versatile winch.

It comprises of a 1.2kW DC permanent magnet motor, 140:1 ratio 3 stage heavy duty gearing, automatic load holding brake and stronger steel fabricated drum.

The stronger fabricated steel drum on all models provides the best & safest option to use either steel or synthetic rope.

With sealed motor and gearbox the BC3500 has an IP68 rating to provide protection from water, dirt and dust.

The BC3500 operation has ability to power forward and reverse and with freespool as standard feature.

Winch control options consist of wired remote, wireless remote and permanent mounted waterproof switch.

Specifications BC3500

Rated Line Pull	1590 kg (3500 lb) single line pull
Gear Box	3 Stage planetary
Gear Ratio	140 : 1
Motor 12v	1.2 kW 1.6 hp)
Motor 24v	1 kW (1.3hp)
Dimensions	As per line drawings in this manual.
Weight Range unboxed	10.5 kg 12 kg 13.3 kg
Mounting	2, bolt, 3 bolt or 4 bolt
Rope maximum length	10M & 15M of 5mm steel or synthetic option
Performance	As per performance chart in this manual
Current Draw	Maximum 260 Amps
Freespool	Rotate lock & unlock

Prior to Using Your Winch

Read & Understand guidelines below for correct and safe operation of your winch



Read Owner's Guide

Your winch will come with access to the owner's operating and installation guide. Read and understand safe operation of the winch before use



Use Protective Gloves

Strong protective gloves will help protect hands from rope cuts and scrapes. Avoid touching the motor as it will get hot during use.



Never Touch

Always keep hands clear of the winch drum, rope or any moving parts



Never Touch

Always keep hands clear of the winch drum. Avoid handling the winch rope or hook. Use a safety strap when handling winch rope or hook



Never Lift or Transport People

A winch must never to be used to lift or transport people. Any lifting of materials should only be performed with a purpose made and approved winch or hoist.



Stand Clear

Always stand clear and never between the winch and the object being moved.



Performance BC3500 recovery winch

BC3500					
Load		Speed		Current	
LBS	KG	ft/Min	m/min	Amps	
0	0	24.6	7.5	23	
1000	453	16.4	5.0	73	
1500	680	14.8	4.5	98	
2000	907	12.8	3.9	125	
2500	1134	11.5	3.5	154	
3000	1361	9.8	3.0	183	
3500	1588	8.5	2.6	220	
4000	1814				

Important !!

It is the installers and operators responsibility that before use the BC3500 is mounted to a suitable platform or structure.

It is to be correctly and adequately secured capable to stand all loads applied with suitable margin of safety. Consult a structural engineer if uncertain.

Suitable ropes must be used with suitable minimum breaking strain.

A SK78 minimum 5 mm diameter Dyneema

If a high tensile steel rope is used a minimum diameter of 5 mm is required.

The BC3500 must not be used for lifting, supporting or transportation of people.

The BC3500 must not be used to support, move or hold loads above people.

The BC3500 must always be used in a safe manner, making sure hands, body parts and all people are clear of the rope and objects being moved while the BC3500 is in use.

Never use the BC3500 for securing loads while transporting.

Allow slack in the rope between the load and winch during transport.

Use suitable rated load restraints for load securing.

Safety and Precautions

It is important all precautions are take for the safe operation of the BC3500..

It is the owner's and operator's responsibility to understand the correct safe installation and operation of the BC3500. This will help to avoid injury, death and or damage to property.

This manual will assist the owner with product information and installation. Additional information is provided for safety guidance, contrary use or installation can result in injury, death and damage to property.

Important !!

Safe Operation

WARNING

Be sure the BC3500 has been installed and wired correctly before use. Inspect mounting hardware is secure.

Check rope is winding on correctly, incorrect wind on direction will have no brake load holding. Rope must feed onto the bottom of the drum, looking at the winch from the rope, motor is on the left.

Inspect rope is not damaged, damaged rope can fail resulting in rope breaking, causing loss of load, death, injury or damaged property.

Be certain the winch rope is secured to the load at a suitable location with adequate strength for load applied. Use safety sling if no suitable anchor point is available.

Always make sure winch rope is being applied onto the winch in a straight line horizontal to the ground and at 90 degrees to the winch.

Use directional pulley if needed, ensure the rope is always at the correct height level and direction. Wind rope evenly onto the drum.

Make sure all areas between the winch and the load are clear of obstruction and people, stand clear of the rope when winching., keep hands clear from the winch.

Avoid stop start recovery, plan for one continuous single operation. Do not have repetitive loads without allowing winch to cool. Do not use the winch at high load for extend period of time.

If the motor gets to hot allow adequate time for cooling. Do not put your hands on a hot motor. Allow motor to cool until a comfortable to touch temperature. Overheating will result in winch failure.

When winch is not in use remove control switch or remote were fitted. Shut off power supply to the winch where possible.

WARNING

Never leave the winch unattended while under load. Visual contact must be maintained of the winch and load during operations.

Options & operation BC3500

The BC3500 is supplied with many options and accessories. This makes it versatile to suit your installation and application.



The BC3500 supplied as an ATV version is supplied with a mount plate suitable for hawse or roller fairlead mounting.

A standard base plate can be requested if no hawse or roller is not required.

The aluminium hawse is not to be used with steel rope and the roller fairlead may be required.

If a hawse or roller is used the winch rope can only be in the underwound direction. Rope winding is explained in under rope installation in this manual.



The BC3500 supplied with control box mounted and used with rope in overwound direction can not be used with mounted hawse or roller fairlead.

This installation may be used on boat & car trailers to maintain the most direct line for boat retrieval.

Over wound rope will have the winch motor to the right and gear-box to the left when viewing the winch mount with the rope coming towards you..



The BC3500 supplied with control box mounted and used with rope in underwound direction .

This installation may also used on boat & car trailers to maintain the most direct line for boat retrieval.

Under wound rope will have the winch motor to the left and gear-box to the right when viewing the winch mount with the rope coming towards you.

In most trailer applications the rope is always feeding onto the winch in direct line 90 degrees to the drum. In this situation a guide hawse or roller fairlead offers minimal benefit.



The BC3500 supplied with control box mounted and used with rope in underwound direction .

This installation may also used on boat & car trailers to maintain the most direct line for boat retrieval.

Under wound rope will have the winch motor to the left and gear-box to the right when viewing the winch mount with the rope coming towards you.

This option is also available with mounted hawse or roller fairlead for use with steel rope.



BC3500 accessories. Include wireless controls & roller fairlead.

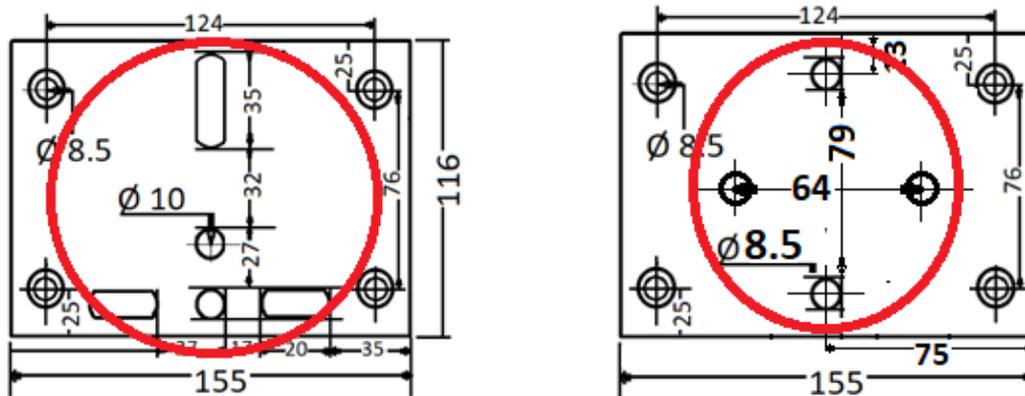
Mounting BC3500

Correct mounting of the BC3500 is the customers responsibility.

Before mounting your BC3500 inspect for and signs of possible damage and all assembly bolts and screws are secure.

Mounting hardware must be of a minimum M8 high tensile grade 8 bolts. M10 bolts may be used with non hawse mount plate.

Dimensional diagram shows cut outs in mounting plate for suitable securing positions. A minimum of two mounting bolts must be used being centre holes front hole and rear.



The bolts must be secured with spring washer behind the nut or lock nut should be used. Two flat washers should be used on the bolts on both sides of the mounting plate one under the bolt head and one under the lock washer or lock nut. Ensure all nuts are firmly secured at 30 Nm of torque for M8.

The use of undersized or under strength bolts can result in the mounting failing under load. This can result in injury, death or damage.

! WARNING

The mounting platform or structure must be of adequate strength to support the full line pull capability of the winch. Plus incorporate a safety factor which will eliminate possible distortion of the mounting platform. A steel mounting platform of 6mm thickness may be required. Seek qualified engineering support if uncertain.

The BC3500 must be located in a position it will not be submerged in water.

The BC3500 can be mounted horizontally or inverted but must be mounted so the rope feeds on in a direct straight line either from the load or via a pulley block.

When mounted the rope must feed onto the winch drum from the underside of the drum when looking at the winch with the motor to the left and gearbox on the right. Incorrect installation of the rope will eliminate the load holding mechanical brake.

Electrical Installation BC3500 ATV

Follow wiring instructions provided in the manual to suit your winch model.

Always provide power to the winch direct from + & - battery.

DO NOT use vehicle chassis or body for negative supply.

⚠ DANGER Avoid electric shock. Disconnect battery when installing the winch

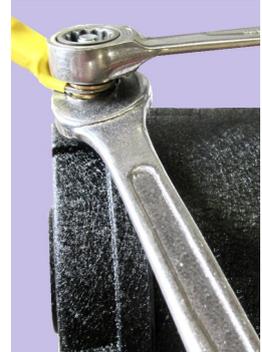
⚠ WARNING

The motor and solenoid terminal have lower and upper securing nut. Remove the upper nut and washer. It is important to inspect the lower nut is firm but do not overtighten.

Apply the power cable lug eye over the bottom nut. Use flat washer on either side were provided or spring washer below the upper nut.

Use a spanner to support the lower nut when tightening and securing the upper nut. Tighten nuts to maximum torque 5Nm.

This will help prevent over tightening and turning of motor or solenoid terminal, rotation of the terminal will result with internal damage to the motor or solenoid.



⚠ CAUTION

When routing the power cables select a suitable path which will not interfere with the operation of the winch or be in the path of the winch rope.

Use additional protection on the wiring conduit which comes into contact with sharp objects or any surface which can rub and wear the electrical conduit.

Power cables should be at shortest required length where possible.

A qualified electrician may shorten cable length if required.

Make sure the wiring is clear of any surfaces which have the potential to get hot.

Any additional length or loose and hanging wiring must be secured with cable ties to strong support out of harms way.

⚠ DANGER

Damaged wiring must not be used.

Damaged wiring can result in short circuit, fire and electric shock.

⚠ WARNING

Incorrect wiring can result in short circuit, fire and damage.

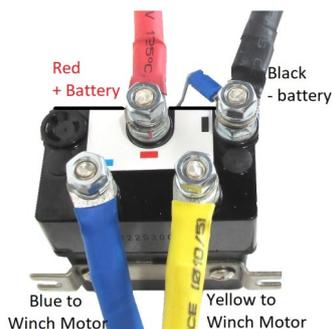
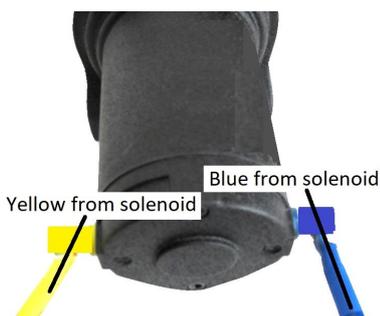
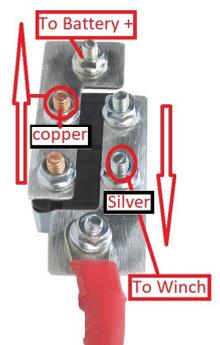
Double check all wiring.

Once inspected connect power cables to the battery

Test winch both forward and reverse directions

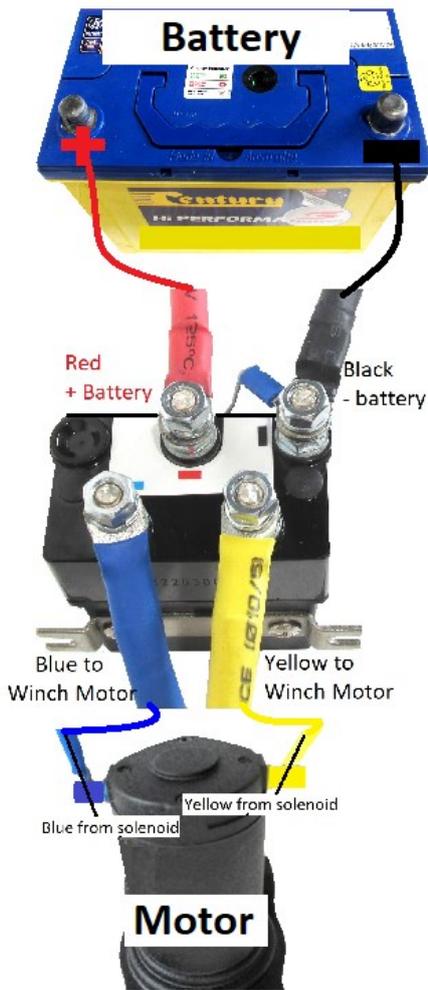
A circuit breaker will prevent over loading, overheating or damaging the BC3500.

Fitting instructions of a circuit breaker are included in the manual and is connected to the main positive cable from the battery.

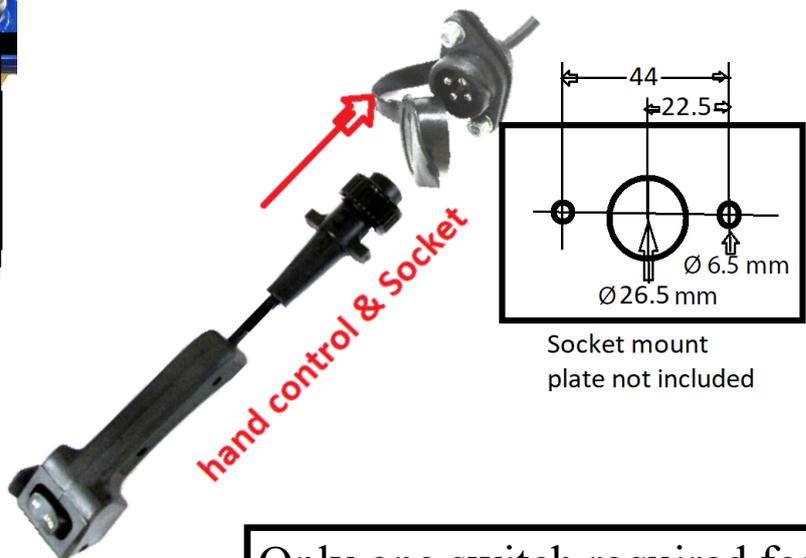
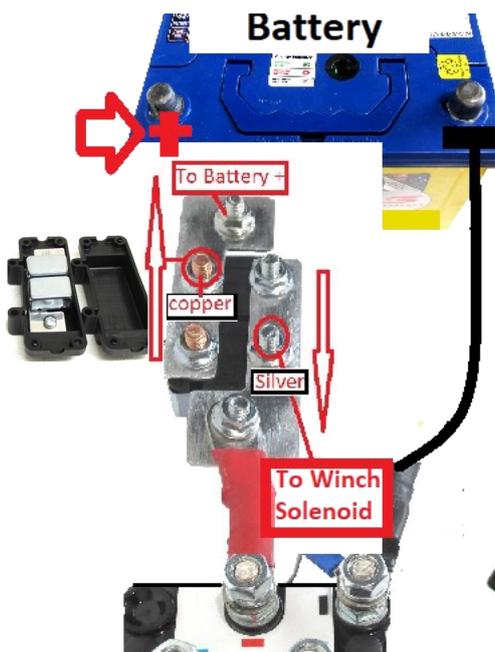
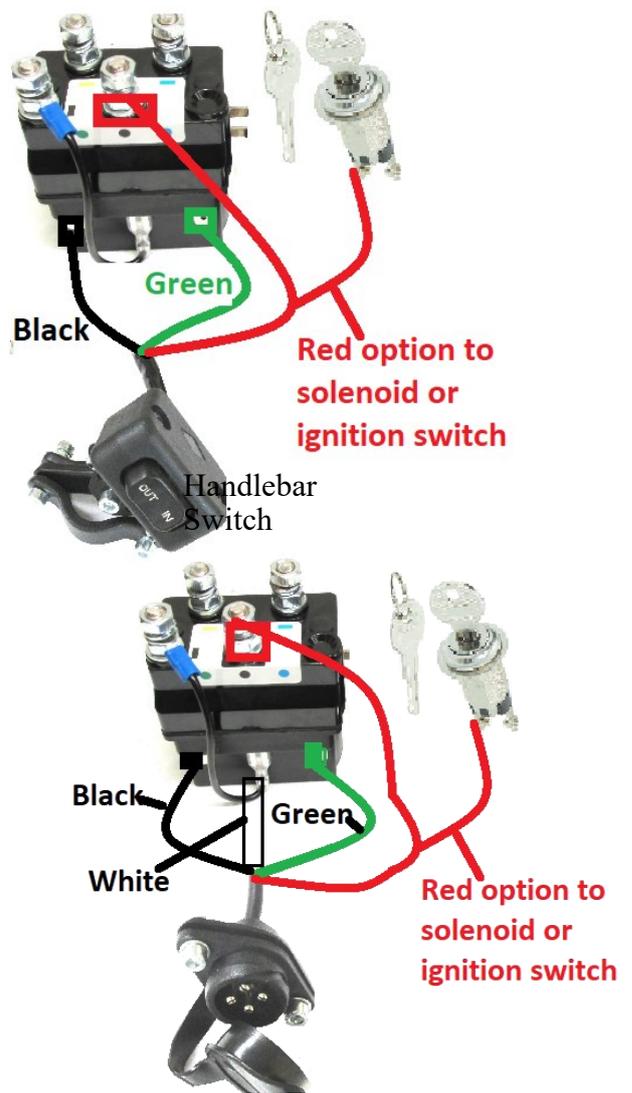


Electrical Installation BC3500 ATV

Battery Not included



Ignition Switch Not included



Only one switch required for winch operation, both can be installed

Electrical Installation BC3500 CP & CPR



The BC3500 CP & CPR is wired with an Anderson plug for easy installation.. An additional plug is provided to connect to a vehicle battery or independent battery.



The BC3500 solenoid control box has a 4 pin sock with locating notch. This is used for all plug in control options.. The socket is suitable to accept the corded hand held control or the wireless receiver.



Plug in corded remote forward and reverse control

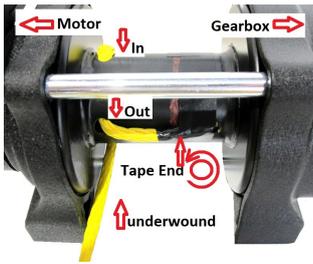


Wireless receiver plugs into the control box



Wireless receiver can become corded remote to plug into control box

Rope Installation BC3500



The BC3500 is suited to both steel or synthetic rope.

In either installation the rope is fed under the drum from the front of the winch and then into the drum from behind the winch. This is correct with the motor on your left and gearbox on your right when facing the winch. Incorrect rope attachment will not allow the brake to function correctly and support loads..

⚠ WARNING Wear leather gloves when handling steel ropes

STEEL ROPE.:

For best performance determine the working length of rope required plus additional 5 wraps of first layer on the drum. The first 5 wraps are important to help secure the rope on the drum. Do not exceed maximum rope length recommendation.!

When installing the steel rope pass under the drum and then into the hole in the drum from behind the winch.

The grub screw used to retain the steel rope may need to be unwound to allow the rope to pass. Push the rope through and loop it through the second hole, push until flush with the drum hole on the outer side.

Tighten the grub screw until firm and slight crush on the steel rope, Apply the rope onto the drum under tension of minimum 5kN. Guide the rope so it layers onto the drum evenly, overlapping the rope will damage the rope.

SYNTHETIC ROPE :

When selecting a synthetic rope for be certain to select a quality rope suitably rated for such applications.

Do not use excessive rope, maintain a suitable working length plus first layer on the drum.

Unused rope compresses and flattens onto the drum, this creates extreme pressure on the barrel and against the cheek plates of the drum. This may damage the drum and the rope.

⚠ WARNING

If applying synthetic ropes to a winch once having steel rope carefully inspect the drum surface for any abrasive surface.

The first layer of rope applied to the drum secures the rope onto the drum.

The first layer should be applied under load of minimum 5kN and must always remain on the drum when BC3500 is used.

The remaining rope is to be layered onto the drum evenly.

Synthetic ropes should only be used where abrasion or sharp edges can be avoided.

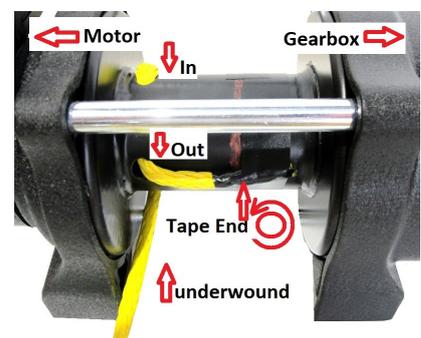
Get information regarding any replacement rope you use for strength and longevity and consideration of being used in an environments with high ultraviolet exposure.

⚠ WARNING

All rope should be inspected before use for wear and damage.

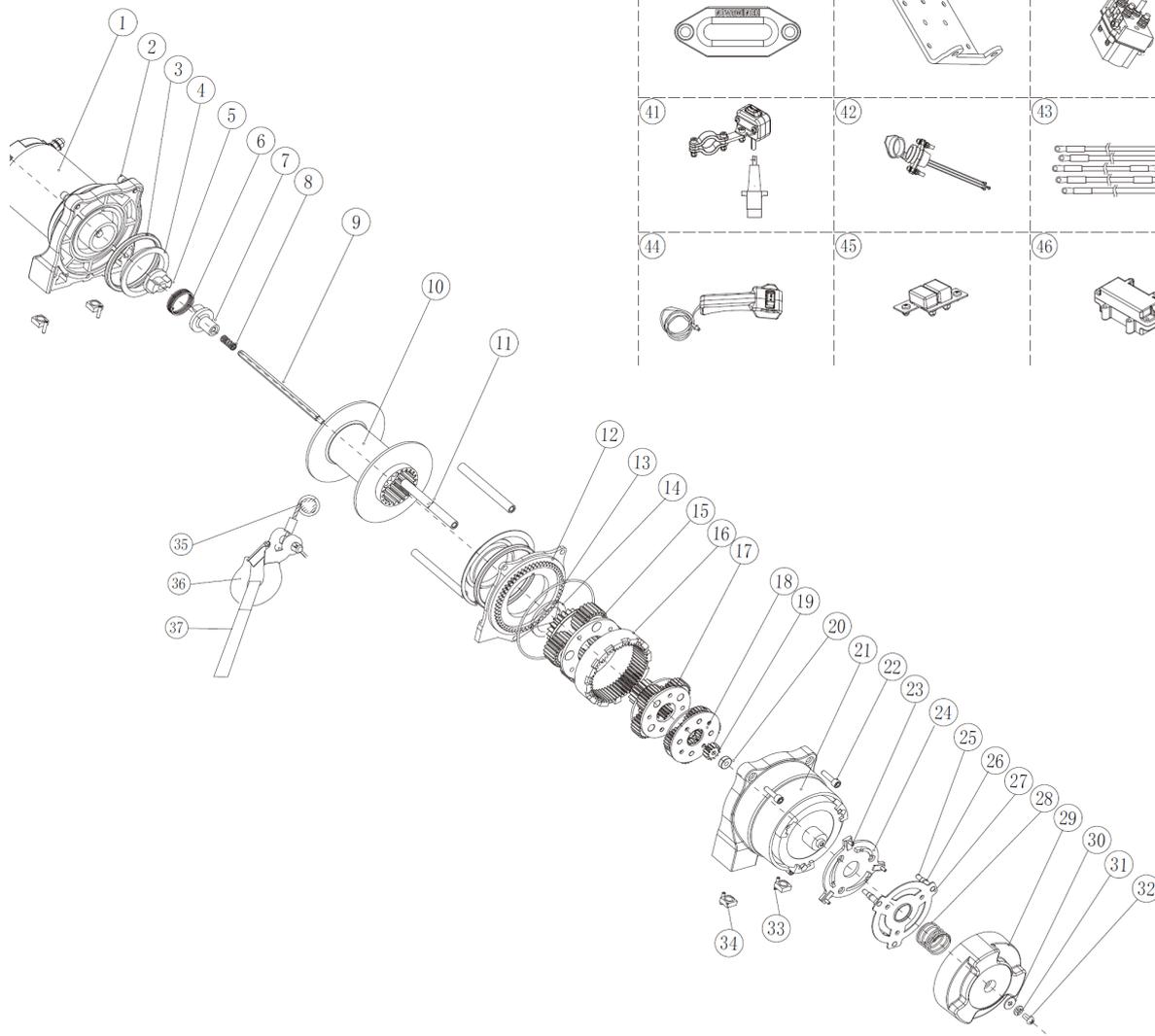
⚠ DANGER

The BC3500 is powerful enough to sever fingers. Keep fingers clear of the rope at the drum or where it may be in contact with any surface. Avoid handling the rope.



BC3500 parts exploded view.

No.	Description	Qty			
1	Motor Assembly	1	18	1st stage planetary gear assembly	1
2	"Hexagon socket cap screws M5*20"	3	19	1st stage sun gear	1
3	Drum barrel	2	20	Deep groove ball bearing	1
4	X-ring	2	21	Gear box	1
5	Coupling I	1	22	hexagon socket head cap screws M5*25	3
6	"Rectangular spring"	1	23	Cross recessed countersunk head tapping screws ST3.5*12	1
7	Coupling	1	24	"Clutch cam"	1
8	Spring ϕ 4.8*18*0.8	1	25	Clutch lever	1
9	Hexagonal drive shaft	1	26	O shape sealing ring Φ 4.5* Φ 1.5	3
10	Welded drum	1	27	Clutch soulplate	1
11	Tie bar	3	28	Clutch spring	1
12	Gear box cap	1	29	Clutch handle	1
13	O ring	1	30	Clutch spring	1
14	anti-wear gasket III	1	31	ϕ 5/flat washer	1
15	3rd stage planetary gear assembly	1	32	Cross recess pan head screw M5*10	1
16	2nd stage gear ring	1	33	Elastic cylindrical pin	4
17	2nd stage planetary gear assembly	1	34	Square nut	4



Maintenance BC3500

The BC3500 gearbox is lubricated with an extreme pressure lithium grease. No additional lubrication is expected for the life of the winch. If re-lubrication is performed use only compatible grease.

1/ Regular inspection for tightness of all bolts should be performed to maintain safe secure mounting. All assembly bolts should also be inspected for tightness.

2/ Electrical connections must be regularly inspected to ensure they are tight and secure.

4/ Servicing or repairs must only be undertaken by approved service centre.

5/ Remove any dirt or moisture from ropes and winch

WARNING

Any worn or damaged components must be replaced.

Do not use the BC3500 if any parts are damaged. Use only genuine replacement parts. Inspection of ropes to be performed before each operation if any damaged to the rope it must be replaced before use.

Replace rope if damaged or worn, kinked or frayed..

Trouble Shooting BC3500

<u>Symptom</u>	<u>Possible cause</u>	<u>Remedy</u>
Winch will not operate	Flat Battery Broken connection Damaged switch Damaged solenoid Damaged motor Circuit breaker tripped	Replace battery Check all connections Replace switch Check / Replace solenoid Replace motor Reset circuit breaker
Winch Operates slow Or low line pull	Low battery supply Poor earth Low gauge power cables Worn or damaged motor	Charge or replace battery Connect earth direct to battery Power cable undersize Replace motor
Winch will not shut off	Damaged solenoid Damaged control switch	Replace solenoid Replace switch
Winch operates in only one direction	Solenoid energising wire Faulty solenoid Faulty control switch	Check solenoid connections Replace solenoid Replace switch
Motor extremely hot	Excessive on time Excessive load Poor power supply	Allow to cool Check load weight Refer slow line pull symptom
Winch will not hold load	Load too heavy Brake is worn or damaged Cable wound on incorrectly	Check weight of load Replace brake Check rope installation guide

Wireless Control Duo



Owner's operating manual

WARNING

Read and understand the owners manual before use.
It is important to use the Duo safely and responsibly at all times.
Unsafe operation can cause property damage, injury or death.

Introduction Wireless Duo control

The Wireless Duo enables the operator to control a winch both the forward and reverse direction from a distance of 20 metres wirelessly or 4 metres corded.

⚠️ WARNING

It is the operators responsibility to use the Duo safely and responsibly,
Read and understand safety precautions outlined in this manual.

⚠️ DANGER

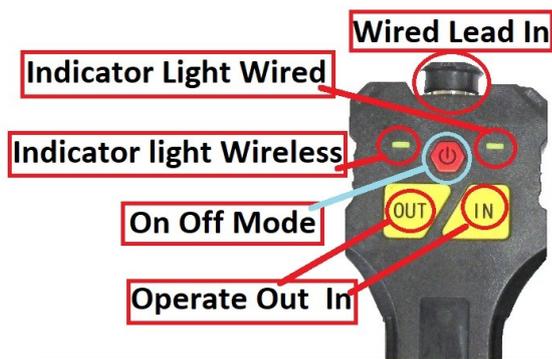
- 1/ Never use the Duo if the winch or device being operated is not clearly visible.
- 2/ Never operate the winch or devise until all people and property are clear of the area.
- 3/ Do not use wireless controls in an area where radio interference may effect either the intended or unintended operation of the Wireless Duo.

The Wireless Duo control includes.

- Plug in screw lock wireless receiver
- Forward and Reverse (In & Out) transmitter
- Adaptable cord to convert from wireless to wired plug in control
- Battery included and installed in transmitter.



Wireless Control Operation



The transmitter has an automatic shut down to preserve battery life. It will shut down after 2 minutes if inactive. Repeat startup to continue use.

The Wireless transmitter comes paired to the receiver ready for use. Picture shows functions

To Start the transmitter press the On Off Mode button and hold for 3 seconds. The indicator light will flash when on and the transmitter is now ready for use. The operate buttons when pressed will signal the receiver with your selected function. Release pressure from the button and the function will cease.

To switch off again press the On Off Mode button and hold for 3 seconds.



The Wireless receiver comes paired to the transmitter ready for use. Picture above shows installation of receiver.

The control box socket and receiver adaptor have corresponding location points and must be paired when mounting the receiver to the socket. Once inserted the rotating lock sleeve can be used to secure the receiver in position.

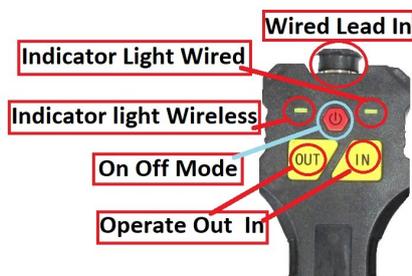
The receiver is powered by the internal wiring of the control box. There is no requirements for batteries in the receiver and the unit is sealed.

Wireless Control Corded Opera-



The Wireless transmitter can become a 4 metre corded control when required or if preferred. There is a Wired Lead In adaptor at the top of the transmitter. Remove the cap to expose a locating point which matches that of the cord. Once connected it has a threaded locking sleeve for retention. The opposite end will plug into the control box socket, also use the locking sleeve to secured into position . Once connected the Indicator Light Wired will confirm the wired control is now in use. The Operate Out In buttons can now be used.

Pairing receiver to transmitter



If The transmitter is replaced or requires re pairing to the receiver follow these step.

- 1/ Remove receiver from control box socket but leave power on at the control box.
- 2/ Hold down On Off Mode Button on transmitter until turned on.
- 3/ Press In & Out button simultaneously and hold until both Indicator lights remain on.
- 4/ When lights begin to slowly flash keep your buttons pressed while reconnecting the receiver to control socket.
- 5/ Continue holding In Out button down until the indicator light turn off. Release the buttons and the receiver and transmitter are now paired.

