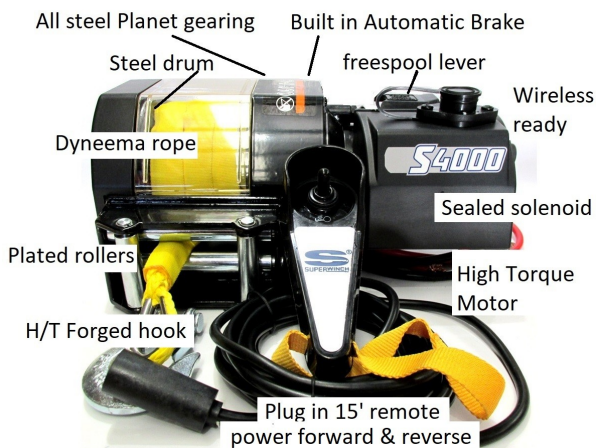


SUPERWINCH®

B&C Winches

BC4000 40000 lb DC



OWNER'S MANUAL

INSTALLATION • OPERATION • MAINTENANCE
SAFETY PRECAUTIONS • REPAIR PARTS

CAUTION

**READ AND UNDERSTAND THIS MANUAL BEFORE INSTALLATION
AND OPERATION OF YOUR SUPERWINCH PRODUCT.**

B&C Winches

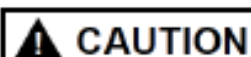
Ph: 02 96039694

info@bandcwinches.com.au

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INTERMITTENT DUTY

An electric winch is like any other motor driven power tool such as an electric drill or saw. The electric motor should not be allowed to become excessively hot. Normal precautions will extend the life of your motor. Keep the duration of pulls as short as possible. **If the end of the motor becomes uncomfortably hot to touch,** stop winching and allow the motor to cool down.



CAUTION *If the winch motor stalls, do not continue to apply power to the winch.*

FEATURES

Electric Motor – 1.8 (S4000), 2.1 (S5000) peak hp, 1.34 (S4000), 1.57 (S5000) kW) 12V or 24V Permanent Magnet.

Braking – A wrap spring brake which will hold 50% of rated load on the first wrap. Reducing by approximately 10% per layer thereafter.

Drum– Die cast aluminium or steel Fabricated. Running on maintenance free bearings

Freespool Clutch – Operated by an easy action lever which disengages the gearbox to allow the wire rope to be pulled out without using electric power. A tension plate reduces backlash and snarling when pulling out the wire rope.

Remote Switch – 30' (9.14 m) handheld pendant switch assembly with toggle switch.

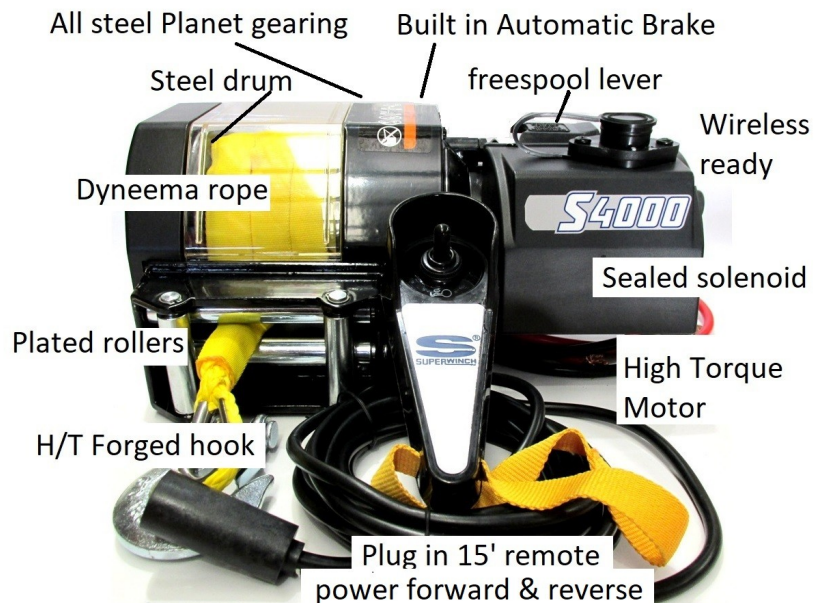
Mounting – Optional custom engineered mounting kits are available for vehicle frame attachment.

European Union



Noise The noise level of this winch in operation is below 92 dB(A).

Battery Isolator In order to conform to Machinery Directive 89/392/EEC, each machine installation must be fitted with an Isolator (Part Number 8370) whereby the machine can be brought safely to a complete stop.



SPECIFICATIONS

S4000

Working Load*	4,000 lb. (1814 kg)
Wire Rope	7/32" x 60'
Motor	12V or 24VDC 1.8 hp (1.34 kW) peak
Gear Ratio	159:1

ROLLING LOAD CAPACITIES

S4000

Slope*	10% (6°)	20% (11°)	30% (17°)	100% (45°)
Lbs.**	17,588	11,905	9,138	4,499
kg**	7,978	5,400	4,145	2,041

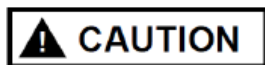
PERFORMANCE

S4000

Wire Rope Layer	Max. Pulling Capacity lbs.	Max. Pulling Capacity kg	Load lbs.	Load kg	Speed ft/min	Speed m/min	Motor Current Amps
1	4,000	1814	0	0	21.6	6.6	30
2	3,000	1361	1,000	454	16.0	4.9	90
3	2,600	1179	2,000	907	12.4	3.8	155
4	2,000	907	2,500	1134	10.6	3.2	180
			3,000	1361	8.8	2.7	215
			3,500	1588	6.2	1.9	250
			4,000	1814	4.5	1.4	311

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Important:

For best results shorten rope to required working length plus minimum 6 wraps on the drum. Rope can be shortened by releasing the grub screw in the drum removing the rope, cut to shorten then re-insert and tighten grub screw.

Important:

To prevent drum damage synthetic rope should only be used on steel drum winch option. Do not have excessive rope on the drum only working length plus one layer for rope retention. Periodically remove all layers to reduce drum compression.

GENERAL SAFETY INFORMATION (CONT.)

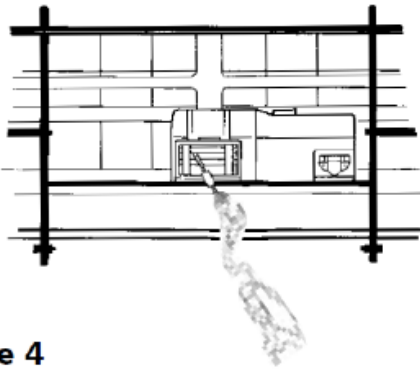


Figure 4



Figure 5

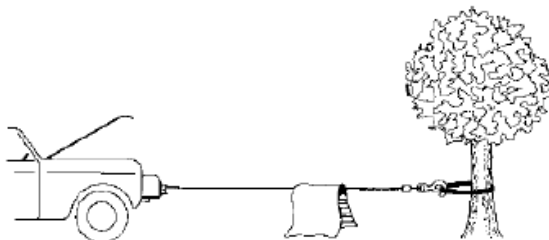


Figure 6

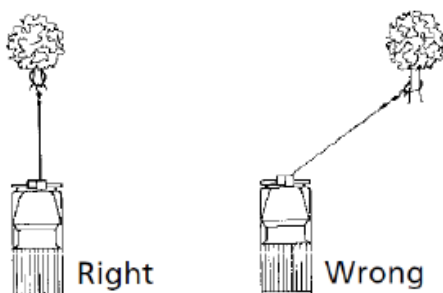
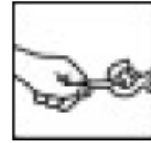


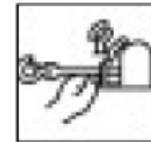
Figure 7

7. NEVER WINCH WITH LESS THAN 5 TURNS of wire rope AROUND THE WINCH DRUM since the wire rope end fastener will NOT withstand a load. ALWAYS USE THE HANDSAVER when guiding the wire rope in or out (see Figure 4).



8. KEEP CLEAR OF WINCH, TAUT WIRE ROPE AND HOOK WHEN OPERATING WINCH. Never put your finger through the hook. If your finger should become trapped in the hook, you could lose your finger.

Never guide a wire rope onto the drum with your hand.



9. NEVER HOOK THE WIRE ROPE BACK ONTO ITSELF because you could damage the wire rope. Use a nylon sling (Figure 5).
10. It is a good idea to lay a heavy blanket or jacket over the wire rope near the hook end when pulling heavy loads (Figure 6). If a wire rope failure should occur, the cloth will act as a damper and help prevent the rope from whipping. Raise the hood of the vehicle for added protection.

11. NEVER USE YOUR WINCH FOR LIFTING OR MOVING PEOPLE.



12. Your winch is not designed or intended for overhead hoisting operations.
13. AVOID CONTINUOUS PULLS FROM EXTREME ANGLES as this will cause the wire rope to pile up at one end of the drum (Figure 7). This can jam the wire rope in the winch, causing damage to the rope or the winch.

INSTALLATION

MINIMUM ELECTRICAL REQUIREMENTS

For 12 volt winches, a 60 ampere alternator and battery with 440 cold-cranking amperes capacity are the minimum recommended power sources. If the winch is in heavy use, an auxiliary battery and heavy duty alternator are recommended.

Step (1)

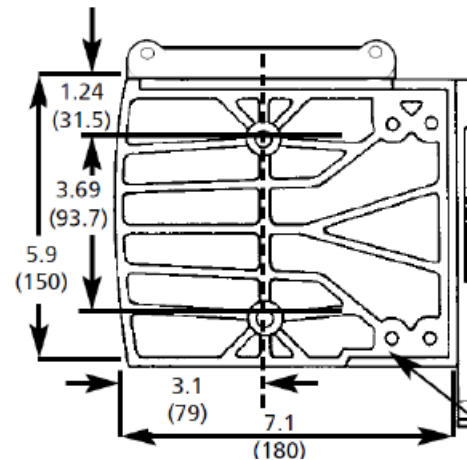
Install mounting kit or structural support for winch.

Step (2)

Mount the winch to the mount that you have designed.

Mounting bolts supplied are the correct length for use with up to a 1/4" (6.3mm) thick plate.

Figure 9



INSTALLATION CONT.

⚠ WARNING

Do not substitute any

strength grade weaker than grade 5.

When attaching wires to the motor terminals and solenoid (relay), hold the inner nut when tightening the outer nut. Do not allow the motor terminals to rotate for it may cause internal wire breakage or part misalignment. Be especially careful in preventing the solenoid (relay) terminals from rotating. Any rotation can damage the solenoid (see Figure 10).



Figure 10

Step (3)

Disconnect the vehicle battery leads.

⚠ DANGER

Automobile batteries

contain gasses which are flammable and explosive. Wear eye protection during installation and remove all metal jewelry. Do not lean over battery while making connections.

Be Prepared

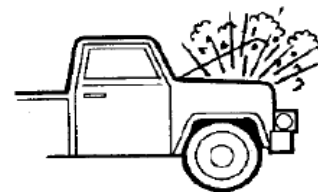


Figure 11

Step (4)

Route the two (2) wires through the vehicle grille to the battery. To ensure against insulation abrasion and/or cutting, apply several layers of electrical tape where wiring may come in contact with sharp metal parts of the vehicle. Attach the circuit breaker assembly to the end of the blue terminated wire. Wrap the circuit breaker assembly with electrical tape to prevent accidental short circuits.

GENERAL SAFETY INFORMATION (CONT.)

14. NEVER OBSCURE THE WARNING INSTRUCTION LABELS.
15. Always operate winch with an unobstructed view of the winching operation.
16. Equipment such as tackle, hooks, pulley blocks, straps, etc. should be sized to the winching task and should be periodically inspected for damage that could reduce their strength.
17. NEVER RELEASE FREESPOOL CLUTCH WHEN THERE IS A LOAD ON THE WINCH.
18. STORE THE REMOTE PENDANT ASSEMBLY IN A SAFE PLACE when not in use to prevent use by children or other unauthorized persons.
19. DO NOT OPERATE WINCH WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL OR MEDICATION.
20. ALWAYS UNPLUG THE REMOTE PENDANT BEFORE WORKING IN OR AROUND THE FAIRLEAD OR WINCH DRUM (THE DANGER ZONE) so that the winch cannot be turned on accidentally.
21. When moving a load, slowly take up the wire rope slack until it becomes taut. Stop, recheck all winching connections. Be sure the hook is properly seated. If a nylon sling is used, check the attachment to the load.
22. When using your winch to move a load, place the vehicle transmission in neutral, set vehicle parking brake and chock all wheels.
23. DO NOT USE THE WINCH TO HOLD LOADS IN PLACE. Use other means of securing

loads such as tie down straps. Superwinch offers a wide variety of tie downs. Contact your local Superwinch dealer.



24. USE ONLY FACTORY APPROVED SWITCHES, REMOTE CONTROLS AND ACCESSORIES. Use of non-factory approved components may cause injury or property damage and could void your warranty.
 25. DO NOT MACHINE OR WELD ANY PART OF THE WINCH. Such alterations may weaken the structural integrity of the winch and could void your warranty.
 26. Do not power the winch out for more than 50 feet (15.2m) or longer than 2 minutes.
- ⚠ WARNING** *The drum and wire rope may get very hot (Figure 8).*
27. DO NOT CONNECT WINCH TO EITHER 110V AC HOUSE CURRENT OR 220V MAINS AS WINCH BURNOUT OR FATAL SHOCK MAY OCCUR!
 28. Never allow shock loads to be applied to winch or wire rope.
 29. Use caution when pulling or lowering a load up and down a ramp or incline. Keep people, pets and property clear of the path of the load.

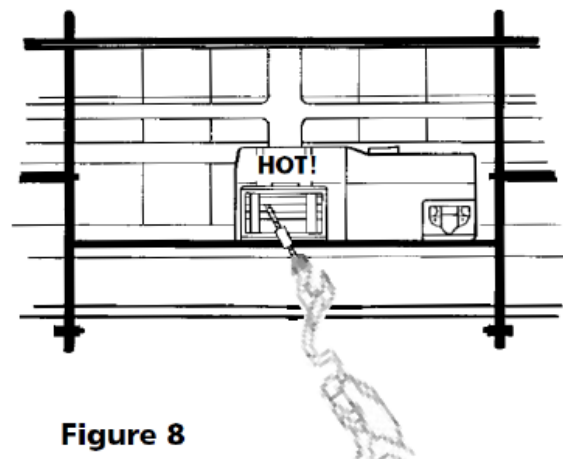


Figure 8

INSTALLATION CONT.

Note: If you choose to locate the winch at a greater distance than the wires provided will permit, it may be necessary to purchase a larger gauge wire to get the best performance from your winch. If the total length of additional wire to be added to the system exceeds 10' (3m), use a larger wire gauge size.

Attach the circuit breaker directly to the battery positive terminal, and reattach the terminal to the battery. If your vehicle is equipped with side pole terminals, it may be necessary to obtain auxiliary side terminal bolts from your local auto parts dealer to make these connections.

Connect the remaining wire to the battery negative terminal, and connect the terminal to the battery.

Step (5)

Lift the freespool clutch lever to the "Free" position. Pull several feet of wire rope off the drum. Return the clutch lever back to the "Engaged" position. Plug in the remote pendant control. Press the switch trigger to the "Rope-Out" position momentarily to check wire rope drum rotation and direction. If the drum rotates in the wrong direction, recheck your wiring. The Handheld pendant switch activates a solenoid that activates power to the winch motor. One solenoid is for "Rope Out" motor direction and the other is for the "Rope In" motor direction (Fig. 12).

⚠ CAUTION

To prevent unauthorized use of the winch, remove pendant control and store in a clean dry area such as the glove box.

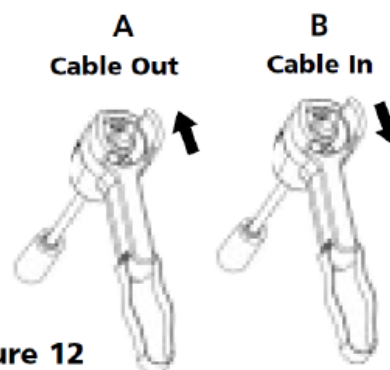


Figure 12

PENDANT OPERATION

The handheld pendant switch activates a solenoid that activates power to the winch motor. To connect the pendant control, remove the cover on the plug receptacle (Figure 13) and insert the plug end of remote switch. The plug on the pendant control cord is keyed and will fit into the socket only one way. The switch trigger returns to the "Off" position when released. To change direction, move the toggle in the other direction. (Fig.12)

⚠ CAUTION

The switch assembly must be kept free of dirt and moisture to ensure safe operation.

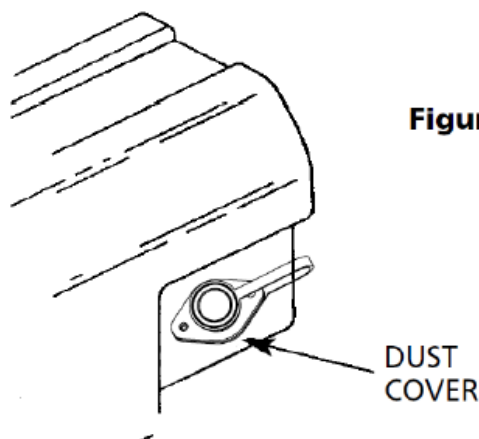
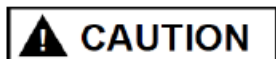


Figure 13

PULLING OUT THE WIRE ROPE

The wire rope has been installed on your winch under minimal load at the factory. The wire rope must be respoiled onto the drum under load so that the outer layers will not draw down into the inner ones, thereby damaging the wire rope.

Lift the clutch lever to the "Free" position as shown in Figure 13. If there is a load on the wire rope, the clutch lever may not turn easily. **DO NOT FORCE THE CLUTCH LEVER.** Release tension on the wire rope by jogging out some of the wire rope. Releasing the clutch and pull out the wire rope and secure to anchor or load. Check that there are at least five (5) turns of wire rope left on the drum. Re-engage the drum by returning the clutch lever to the "Engaged" position (see Figure 14).



CAUTION *Lever must be in the "Engaged" position and locked before winching.*

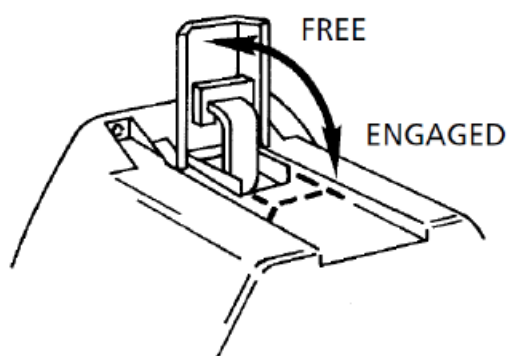


Figure 14

TIPS FOR EXTENDING THE LIFE OF YOUR WINCH

1. **KEEP THE WIRE ROPE TIGHTLY WOUND ON THE DRUM.** Do not allow the wire rope to become loosely wound. A loosely-wound spool allows a wire rope under load to work its way down into the layers of wire rope on the drum. When this happens, the wire rope may become wedged within the body of the windings damaging the wire rope. To prevent this problem, keep the wire rope tightly and evenly wound on the drum at all times. A good practice is to rewind the wire rope under tension after each use. One way to do this is to attach the hook to a stationary object at the top of a gradual incline and winch your vehicle up the incline.
2. **DO NOT ALLOW WINCH MOTOR TO OVERHEAT.** Remember, the winch is for intermittent use only. During long or heavy pulls the motor will get hot. For pulling at rated capacity, allow motor to cool after 20 seconds of "On" time. At loads less than 50% of rated capacity, allow to cool after 2 minutes of "On" time. **KEEP THE ENGINE RUNNING TO RECHARGE THE BATTERY** during this break.
3. **USE A PULLEY BLOCK FOR HEAVY LOADS.** To maximize winch and wire rope life, use a pulley block to double line heavier loads (Figure 15).



Figure 15

4. The pull required to start a load moving is often much greater than the pull required to keep it moving. **AVOID FREQUENT STOPS AND STARTS** during pull.
5. **PREVENT KINKS BEFORE THEY OCCUR.**

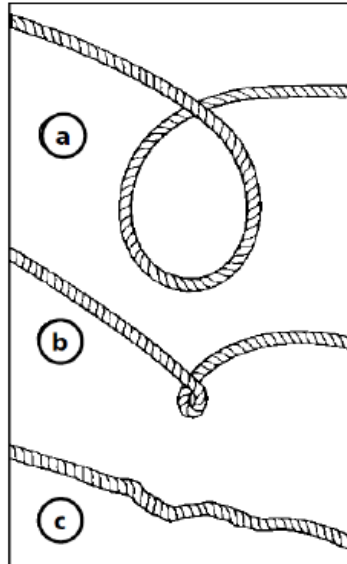


Figure 16

- a. This is the start of a kink. At this time, the wire rope should be straightened.
 - b. The wire rope was pulled and the loop has tightened to a kink. The wire rope is now permanently damaged and must be replaced.
 - c. Kinking causes the wire strands under the greatest tension to break and thus reduces the load capacity of the wire rope. The wire rope must be replaced.
6. **EQUIPPING THE WINCH WITH A ROLLER FAIRLEAD** will substantially reduce wear on the wire rope during angle pulls (Figure 17). The rollers eliminate heavy rubbing and abrasion to the wire rope.

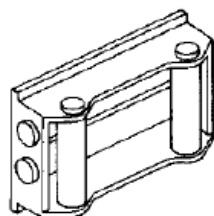


Figure 17

MAINTENANCE AND REPAIRS

Periodically check tightness of mounting bolts and electrical connections. Remove any dirt or corrosion that may have accumulated on the electrical connections.

Repair should be done by Authorized Superwinch Repair Centers ONLY. Do not attempt to disassemble the gearbox. Disassembly will void warranty.

LUBRICATION

The gearbox and drum bearing are permanently lubricated with a high performance gear lube. If relubrication is necessary (after repair or disassembly) only use Shell Alvenia EP2 or equivalent.

REPLACING THE WIRE ROPE

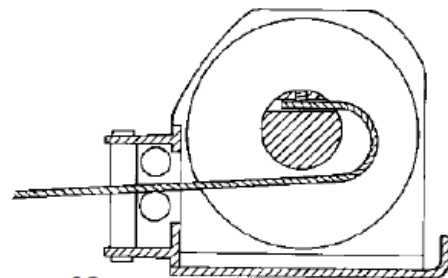


Figure 18

Never substitute a heavier or lighter wire rope. Never use rope made of any material other than wire.

Always replace damaged wire rope with manufacturer's identical replacement part (see Replacement Parts list). Pass attaching end of wire rope through the fairlead (if equipped) and attach it to the drum. When inserting the wire rope into the drum, insert it into the correct end of the hole provided (Figure 18). Tighten the set screw securely.

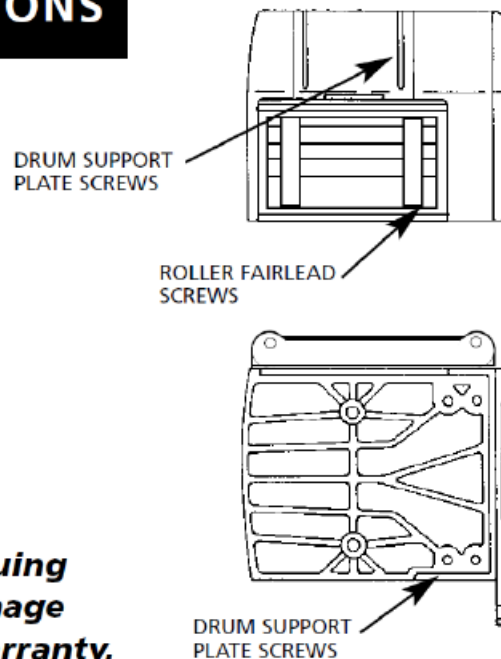
It is important that the wire rope be wound tightly onto the drum. A good way to do this is to attach the wire rope hook to a fixed object at the top of a slight incline, then winch the vehicle up the incline.

TORQUE SPECIFICATIONS

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Drum Support Plate Screws	50-60 lb in
Hawse (Roller Fairlead) Screws	45-55 lb in
Base Screws	65-75 lb in
Motor	35-40 lb in

⚠ WARNING *Over torquing could damage your winch and void your warranty.*



Important:

For best results shorten rope to required working length plus minimum 6 wraps on the drum. Rope can be shortened by releasing the grub screw in the drum removing the rope, cut to shorten then re-insert and tighten grub screw.

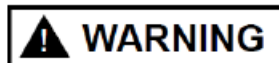
Important:

To prevent drum damage synthetic rope should only be used on steel drum winch option. Do not have excessive rope on the drum only working length plus one layer for rope retention. Periodically remove all layers to reduce drum compression.

BRAKE OPERATION

Your S Series winch has a wrap spring brake that stops and holds loads up to 50% rated capacity on the first layer of wire rope closest to drum.

Each additional layer of wire rope reduces brake capacity approximately 10%. When powering the winch in, the brake is disengaged and does not become activated until the motor is turned off and the load tries to pull the wire rope off the drum. When the winch is powered out, as in releasing a load, the brake is engaged and the motor must over power the brake drag to rotate the drum. Therefore, it is normal for the winch to operate faster in one direction than the other. The brake is designed for the wire rope to be used in the under-wind position only. **DO NOT OVER-WIND.** Powering against the brake will cause heat to build up in the drum and may transfer heat to the wire rope (Figure 19). **DO NOT POWER OUT FOR MORE THAN 50 FEET (15.2m) OR 2 MINUTES.**



The drum and wire rope may get very hot.

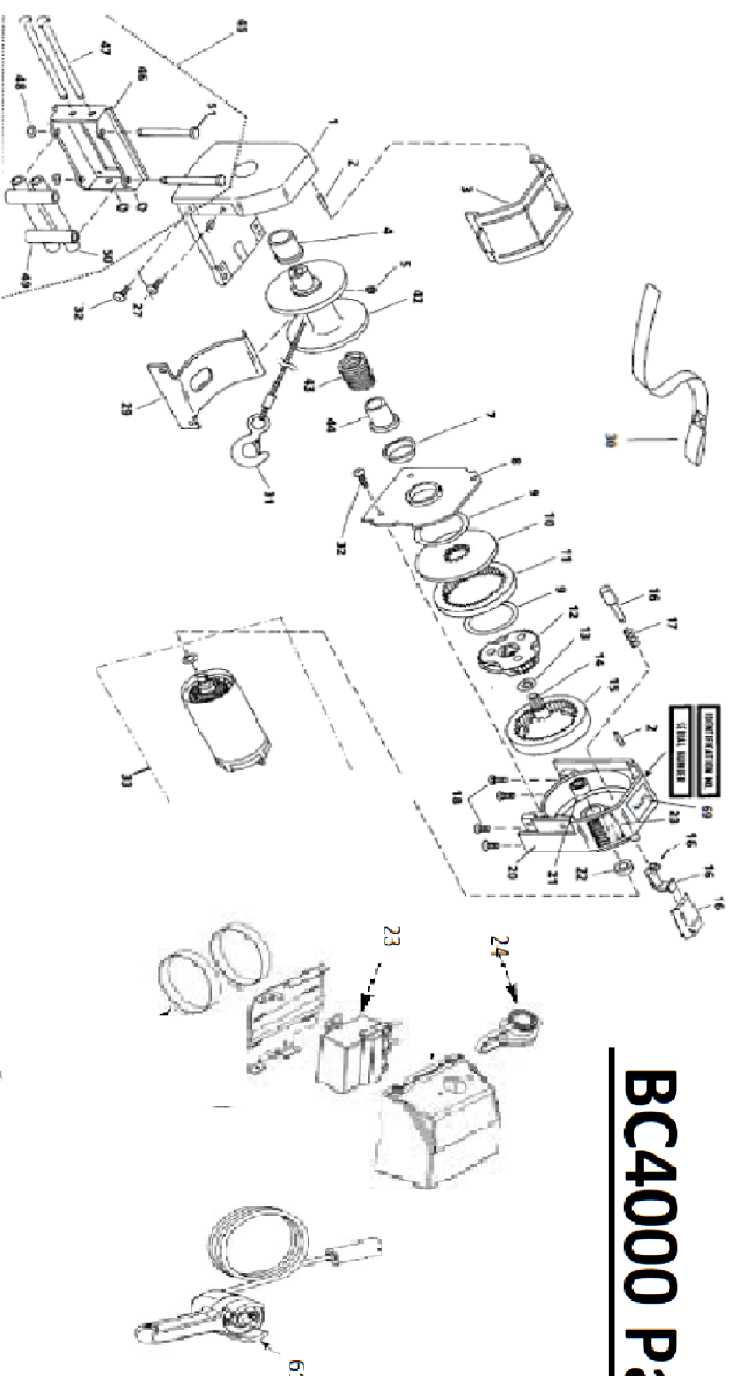
When wire rope is removed from the drum, as in bringing the hook to the load, the freewheel feature of the winch should be used.

TROUBLESHOOTING CHART

If a problem arises, contact your nearest Superwinch dealer or repair center.

Symptom	Possible Cause(s)	Corrective Action
Motor will not operate or runs in one direction only	<ol style="list-style-type: none"> 1. Damaged or stuck solenoid 2. Switch inoperative 3. Broken wires or bad connection 4. Damaged motor 5. Solenoids not grounded 	<ol style="list-style-type: none"> 1. CAUTION Disengage clutch before performing this test to prevent powering the wire rope drum. If a solenoid sticks once, it is likely to stick again and must be replaced immediately. Tap solenoid to free stuck contacts. Check by applying voltage to the small solenoid terminal. Be sure solenoid is grounded back to source. A solenoid that is not stuck will make an audible "click" when first energized. 2. Replace switch 3. Check for poor connections: CAUTION Always use 2 wrenches (spanners) (see Fig. 11) 4. Replace or repair motor 5. Check the ground path between battery negative and solenoid base
Winch will not shut off	<ol style="list-style-type: none"> 1. Solenoid stuck "On" 	<ol style="list-style-type: none"> 1. If a solenoid sticks on, reverse direction and hold trigger switch until the power lead can be disconnected. A safety disconnect switch is available as an accessory
Motor runs extremely hot	<ol style="list-style-type: none"> 1. Long period of operation 2. Damaged motor 3. Damaged brake 	<ol style="list-style-type: none"> 1. Allow to cool 2. Replace or repair motor 3. Replace or repair brake
Motor runs but with insufficient power or line speed	<ol style="list-style-type: none"> 1. Weak battery 2. Battery to winch wire too long 3. Poor battery connection 4. Poor ground 5. Damaged brake 	<ol style="list-style-type: none"> 1. Recharge or replace battery. Check charging system 2. Use larger diameter wire 3. Check battery terminals for corrosion. Clean as required 4. Check and clean connections 5. Repair or replace brake
Motor runs but drum doesn't turn	<ol style="list-style-type: none"> 1. Clutch not engaged 	<ol style="list-style-type: none"> 1. Engage clutch
Winch runs backwards	<ol style="list-style-type: none"> 1. Motor wires reversed 2. Solenoids wired incorrectly 	<ol style="list-style-type: none"> 1. Recheck wiring 2. Recheck wiring
Winch will not hold load	<ol style="list-style-type: none"> 1. Excessive load 2. Worn or damaged brake 	<ol style="list-style-type: none"> 1. Reduce load or double line 2. Repair or replace brake

BC4000 Parts



1	Base	89-52021	1	27	M6 x 1 x 13mm Button Head Screw	89-22290-01	2
2	Groove Pin	89-23303-01	2	29	Cable Tension Spring	89-32295	1
3	Cable Guard	89-32268	1	30	Handsealer	87-31120	1
4	Main Bearing	89-22268	1	31	Wire Rope Assembly w/hook 1/4" x50' (S5000)	1577A	1
5	M6 x 1 x 8mm Cup Pt. Set Screw	90-23164-12	1		Wire Rope Assembly w/hook 7/16" x60' (S4000)	1514A	1
					Wire Rope Assembly w/hook 3/16" x60' (S3000)	1511C	1
7	Drum Bearing	89-22269	1	32	M6 x 1 x 16mm Button Head Screw	89-22290-02	5
8	Drum Support	89-40092	1	33	12 Volt-Complete Motor (S4000)	90-32295	1
9	Thrust Washer	90-12574	2		24 Volt-Complete Motor	89-32297	1
10	Drive Plate	89-32263	1	38	"Superwinch" Nameplate	89-22277	1
11	Rotating Ring Gear	89-32265	1	39	M4 x 0.7 x 6mm Hex Washer Head Screw	89-22292-01	4
12	Planetary Carrier Assembly	89-22141	1	42	Drum	89-40085	1
14	Sun Gear	89-33303	1	43	Brake Spring	89-22342	1
15	Stationary Ring Gear	89-32266	1	44	Brake Adapter	89-22287	1
16	Free Wheel Repair Kit (Includes Shaft, Lever, Handle, and Rivet)	89-10580	1	45	Roller Fairlead	89-40123	1
17	Free Wheel Spring	90-23152-08	1	46	Roller Fairlead Frame	89-40113	1
18	M6 x 1 x 16mm Flat Head Screw	89-22291-01	4	47	Roller Fairlead Shaft (Long)	89-22334-02	2
20	Housing Assembly (includes 21 & 22)	89-40104	1	48	Retainer Ring	90-23029-06	4
21	Needle Bearing (.87125 x 1.125 x .750)	89-22263-03	1	49	5/8 x 2.352 Roller	90-12568-04	2
22	Motor Shaft Bearing	89-12002	1	50	5/8 x 4.735 Roller	90-12568-06	2
23	solenoid 12 volt	20335	1	51	Roller Fairlead Shaft (Short)	89-22334-01	2
	solenoid 24 volt	20336	1	51	Handheld remote control	2272	1
24	socket	14140	1				