Sail Handling by ANDERSEN Stainless Steel Winches

Compact Electric Winches

Above and Below Deck Compact Motors for *Andersen* 28/40/46/52/58/62/68/72ST Winches

Version 5.2

0507

Sail Handling by ANDERSEN Stainless Steel Winches
Jaegervaenget 36, 7100 Vejle, Denmark
www.andersenwinches.com

Contents

Safety First

Never work on an energized motor.

An electric winch is very powerful - only competent sailors should operate an electric winch. Before powering the winch, make sure that children and other crew are standing well clear of not only the winch but also rope being pulled. Always be wary of what the winch is pulling on, as well as the rope's progression to the winch. A rope snagged or jammed on a sail, spar or rigging can result in dangerous overloading. This is especially relevant when using a primary winch for less demanding tasks, where the winch is overly powerful for the task at hand.

Under no circumstances should children be allowed to use an electric winch.

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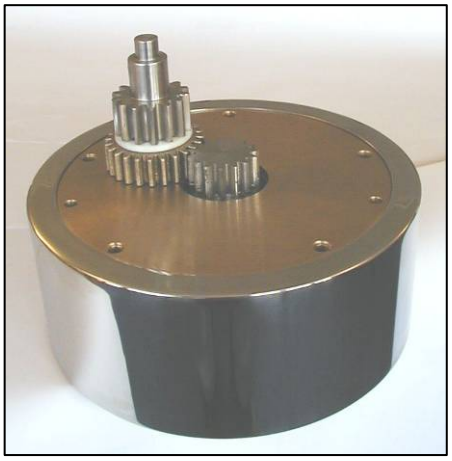
General Information

Please read the following prior to the installation and operation of your new Andersen Compact Winch motor.

Congratulations on purchasing your new *Andersen Electric Compact Winch.* Your new *Andersen Motor* is light, powerful and uses considerably less current than most other motors. Furthermore all the electronics are contained compactly in one neat motor unit. With correct installation your new motor will offer you many years of trouble free sailing.

Andersen Below deck compact motor with deck plate



Andersen Above deck compact motor with stainless steel sleeve

- For above deck models make sure that the control switch cable is well protected against wear as it passes through the deck. Worn cables can short circuit and disable the motor or cause it to start without warning.

- Magnetic fields in the motor may affect compasses even when the motor is not in use. Always install the motor at least a 1 m from your compass. However, while activated the motor may affect compasses at greater distances. Always have your compass recalibrated after installing your motor.

- The motor is deactivated automatically when it reaches approximately 60° C. Function will revert to normal once it has cooled down.
- The motor has an automatic overload cut-off device, which switches off the motor when the load reaches a predetermined level. The motor is automatically reset and can be reactivated when the load drops below the cut-off level.

IMPORTANT
The motor is not designed for continuous extended use. *Avoid unnecessary unloaded running of the motor* as this will generate heat, reducing the running time of the motor.

INCORRECT INSTALLATION WILL INVALIDATE WARRANTY.

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Installation

If in doubt about how to install your new *Andersen Compact Motor* ask a qualified tradesperson for help.

1. Select the position where the winch is to be mounted. Make sure that the surface is even and clean of any visible dirt as an uneven surface can damage the motor.

2. Using the template supplied with your motor carefully drill the required holes in the deck. Always position the motor so that the drain hole is at the lowest position in relation to the slope of the deck. This is particularly important for mast installations.

3. For below deck models, bolt the deck plate in place and go to step 9. For above deck models go to step 4.

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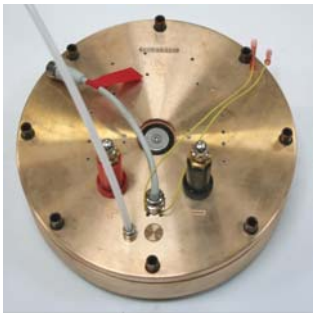
4. For above deck models remove the stainless steel sleeve. Ensure that the 2 o-rings on the top and side of the motor are sitting in their relevant grooves.

Cable extensions in red and black for Above deck motors

5. Attach the terminal extensions to the power terminals (tighten with max 15Nm torque). *Ensure that the red extension is connected to the red positive terminal and the black extension to the black negative terminal. The terminal extensions can be shortened to suit your deck thickness. If you require longer extensions contact your Andersen dealer.*

6. Connect the drain hose. *The drain hole is both a breathing hole for the motor and an outlet for any condensation /water in the motor (which should not exceed more than a few drops per week). If the motor is situated in a position where damage of boat linings or other equipment could occur then lead the hose to the bilge, sink or another appropriate outlet. In most cases, this does not apply and the hose can be cut off just below the deck.*

7. Thread the control cable, terminal extensions and drain hose through the deck and bolt the motor to the deck inserting the plastic washer provided



Special information for 52/58/62/68/72 Above deck models
These models are installed with 10 or 14mm studs in the base of the motor. The Ø6,2 or Ø8,2mm boltholes must be counter sunk 10,2 or 14,2mm x 11mm deep into the deck

between the deck and motor. The bolts are not included with the motor. Use ISO 4762-A4-70-M6 bolts, length 78mm (ISO 4762- A4-70-M8 bolts, length 81mm for 68ST models) + thickness of the deck + thread. Always use corresponding nuts where possible. Avoid using threaded aluminium plate, as aluminium may not have the required strength. All threads must be at least as strong as the corresponding stainless steel nut. When inserting the bolts place a small amount of silicone under the bolt head to ensure that water does not run down the bolts and under the motor. The base of the motor should also be sealed with silicone so that water on the deck cannot run beneath the motor.

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SPECIAL WARNING FOR MAST INSTALLATIONS

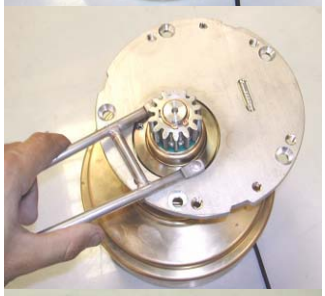
Always use a waterproofing agent (e.g. silicone) to ensure that water cannot run between the motor and the mounting surface. ***Ensure that the motor is installed so that the drain is positioned at the lowest point.***

Use the plastic washer to insulate the bronze motor from unlike metals such as Aluminium.

8. Replace the stainless steel sleeve, checking that the o-rings are in place and are lightly greased. Place the free running axel in the Ø30mm bearing on the top of the motor. (The free running axel is not used on 28ST and 40ST winches. For 68ST models the free running axels are pre-mounted in the winch.) Make sure that the bearing hole and the gear wheels are greased. Please note that the axle may run tightly before the motor is run in. Go to step 12.

9. With the deck plate securely in place, remove the mounting nut and push the top of the motor up through the deck and the deck plate. Re-secure the mounting nut on top of the deck. This may require two people to complete if the motor cannot be supported by another device. *For 52/58/62/68/72ST winches you need to remove the gear wheel on the top of the motor to be able to push the top of the motor through the deck plate. To do this, remove the circlip from the top of the gear wheel with the tool provided then slide the gear off the axle. Remount the gear once the motor has been installed through the deck.*

1. Place the mounting nut over the axle.



2. With the tool provided tighten the nut firmly.

3. Lock the mounting nut by tightening the screw on nut's top side.

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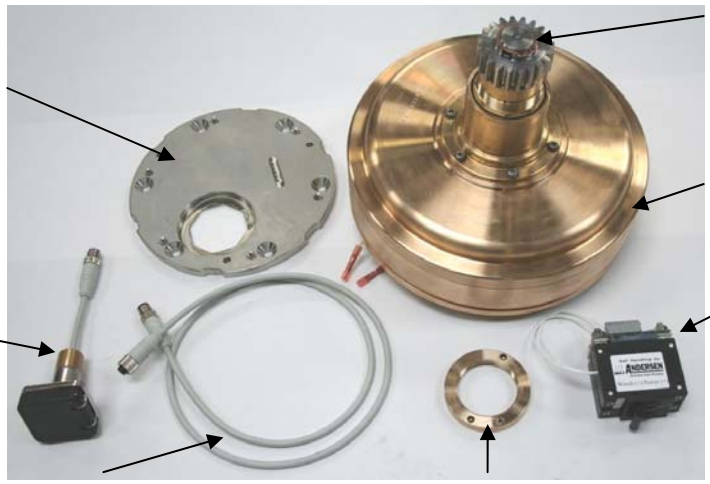


Note: The pictured motor is for a 52ST. The connecting gear on the top of the motor may be different for other winch sizes

10. With the tool provided tighten the mounting nut on top of the deck.

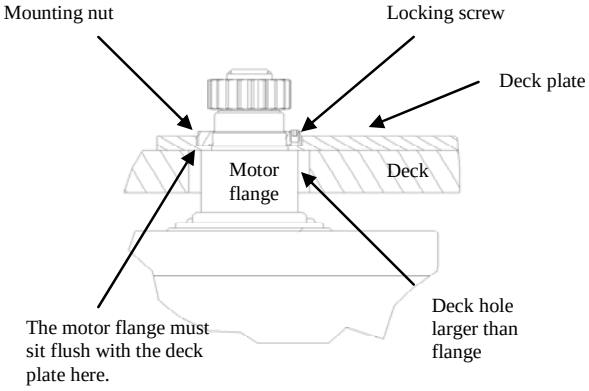
11. Tighten the small hexagon locking screw on the mounting nut.

Important Installation Information for below deck motors!

It is extremely important that your motor is aligned with your winch. Non-aligned motors will be noisy and gear wear will be accelerated. To ensure correct alignment, the motor flange must be flush with the deck plate and the eight-sided nut must fit snugly into the octagon in the deck plate.

This can be achieved with the help of the following:

- Drill a hole through the deck which is wider than the motor flange. When mounted, there must be free space between the deck and the flange.
- Clean the deck hole before attempting the install the motor so that during insertion through the deck, the motor flange does not catch splinters of fiberglass or wood.
- Ensure that the underside of the deck plate is clean and free from resin, varnish or sealants.
- Do not use a sealant between the flange and deck plate. An o-ring ensures a waterproof connection.



Extra waterproofing can be achieved by applying sealant to the top of the deck plate next to the mounting nut after installation.

- Ensure that the o-ring on top of the gear unit is placed in its groove
- Before tightening the mounting screw, ensure that the locking screw on the mounting nut is not protruding beyond the contact surface. Tighten the

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locking screw when the mounting nut is securely in place.

12. Place the winch on the deck plate for below deck models or on the motor for above deck models. With the provided aligning pins in place, bolt the winch in place with the bolts provided. Without the aligning pins, the gears connecting the winch to the motor may not run smoothly. The pins are inserted through the holes in base plate of the winch and into the deck plate or above deck motor case. It may be necessary to tap the pins in with a small hammer. (For 28ST & 40ST the pins are secured during manufacturing)

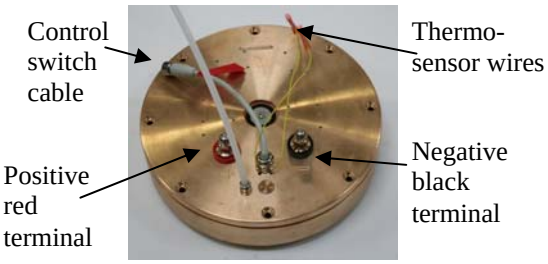
*Note: for 28ST Below Deck Compact Motors only **4 bolts are used to secure the winch.** One hole on the winch base is not used.*

13. Place the winch drum on the winch base and secure the self-tailing arm.

14. Spin the drum with your hand and operate the winch manually with the normal handle. The winch should turn in both gears without great resistance. If this is not the case, repeat steps 12-14.

Electrical Installation

Due to the special design of the motor, incorrect electrical installation will result in permanent damage to the motor and invalidation of any warranty. If in doubt regarding any aspect of the installation seek assistance from a qualified tradesperson.



- **Always apply the relevant voltage to your motor.**
- **Always use the Andersen circuit breaker provided, wired as described in the wiring diagram**
- **Never alter any part of the motor including switches and control cables. The motor may only be installed as delivered. Any changes made to the motor invalidate the warranty.**
- **There are no user serviceable parts in the motor. In case of any malfunction contact your Andersen dealer.**
- **Never work on an energized motor.**

1. Determine the location of the circuit breaker. The circuit breaker should be mounted **vertically**, close to the battery and in an easily accessible position. (See also Circuit breaker/ temperature switch installation)

2. Measure the distance from the battery to the motor (and back) via the circuit breaker to determine the necessary

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total cable length and thickness (see wiring diagram). The cable should be as short as possible to minimise voltage drop from the battery to the motor. A thicker cable (than suggested in the wiring diagram) will also reduce voltage drop.

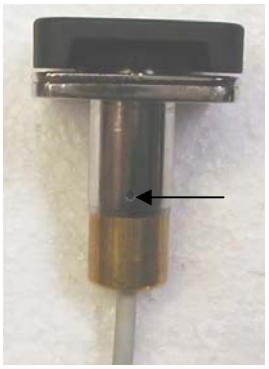
IMPORTANT WARNING Reverse installation of the power cables will permanently damage the motor.

3. Connect the negative black terminal on the motor (tighten the terminal bolts with max 15Nm torque) to the negative terminal on the battery.

4. Connect the red positive terminal on the motor (tighten the terminal bolts with max 15Nm torque) to the circuit breaker end marked “winch” (tighten circuit breaker bolts with max 5Nm torque). Connect the other end of the circuit breaker “power” to the battery (ensure the circuit breaker is in the “OFF” position). A low amperage switch can be installed on your control panel with the help of a solenoid relay as described in the wiring diagram. Appropriate solenoid relays are available from your Andersen dealer.

5. Determine the position of the switch (es), and drill the appropriate hole(s)(Ø25mm).*To avoid accidentally activating the wrong winch and the risk of subsequent personal injury or damage to equipment, it is recommended that switches be mounted in close vicinity to the winch.*

6. Connect the switch control cable extension to the motor and then push the other end up through the switch hole in the deck. Attach the cable to the switch (with the switches rubber gasket in place). Position the switch and screw it in place. (Do not block the breather hole on the side of the switch) The motor is provided with 1m of cable. If longer cable is required, contact your Andersen dealer for an extension cable.



NOTE: Care must be taken that the Ø2 breather hole on the side of the switch is not blocked

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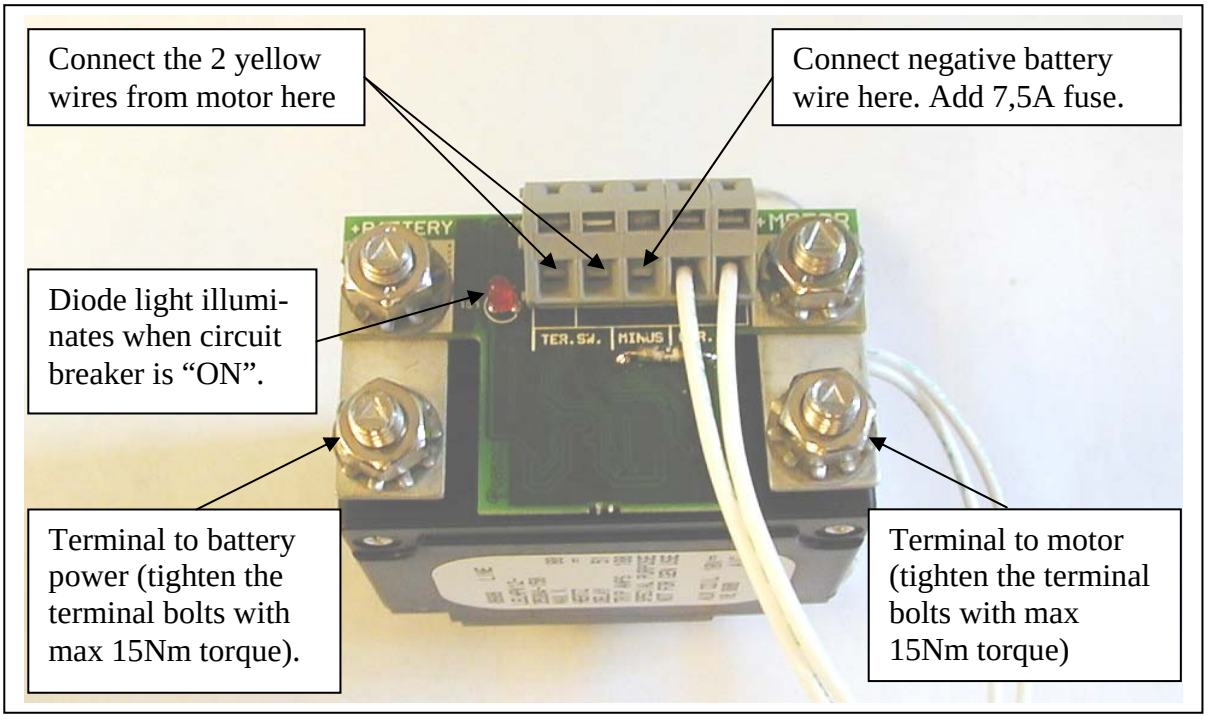
Circuit breaker / temperature switch installation

- To protect the motor from overheating a temperature switch will turn the circuit breaker off if the motor gets too hot.
- To install the switch, extend and connect the 2 yellow wires from the motor to the “TER. SW” connectors on the back of the circuit breaker (0.75mm² wire extenders).
- Connect the negative battery terminal to the “MINUS” connector on the back of the circuit breaker (0.75mm² wire). Add a fuse, close to the battery.
- When installed correctly a diode light will turn on and off when the circuit breaker is on and off.
  - If the light remains on when in the “OFF” position the terminals to the battery and winch need to be swapped.
  - If no light is present check the connection to the “MINUS” terminal



Note: You can TYPICAL add maximum a 50mm² tubular cable lugs on the circuit breaker. This is regarding the free space around the print circuit board.
Be sure that cable lug don’t touch the print circuit board.

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Trouble shooting

The motor does not run but there is light in the switch	Check that the voltage to the motor terminals is over 10V and under 31V	When the correct voltage is available, the motor function normally
	Check that the switch cable is not worn or damaged in any place	Replace cable if possible or contact your Andersen dealer
The motor does not run, there is no light in the switch	Check that the circuit breaker and main power switch are in the "ON" position	If "OFF" turn "ON"
	Check the voltage supply at the motor	Check terminal connections If voltage is correct contact your Andersen dealer
The circuit breaker trips straight away after being reset	Check that the voltage at the breaker is over 10V and under 31V	Charge or change battery Check terminal connections When the correct voltage is available, the breaker can be reset
	Check the connections and wiring from the thermo-sensor to the circuit breaker circuit board	If the thermo-sensor is not connected the breaker will trip. Re-connect the wire and replace if damaged
	Check that the motor hasn't overheated. If over 70ºC the thermo sensor will turn the circuit breaker "OFF"	When the motor cools the circuit breaker can be re-set. If the problem re-occurs contact your Andersen dealer for service.
Motor stops and the light in the switch flashes	The flashing light indicates that the motor has been over loaded or over heated	When the load or temperature falls within the accepted range the motor will function normally
	Check that the switch cable is not damaged or worn	Replace cable is necessary
The diode light on the back of the circuit breaker remains on when the circuit breaker is "OFF"	Check that the cable from the battery is connected to the battery/power end on the circuit breaker.	Swap the two cable terminals on the circuit breaker. Turn the printed circuit board 180º if the terminal connections can not be swapped.
There is no light on the back of the circuit breaker when it is switched "ON"	When there is no light from the circuit breaker important safety features will not function. Check that the "MINUS" supply to the circuit board is not broken or damaged.	Reattach the "MINUS" wire and replace if necessary.

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Extra equipment

Name	Andersen product number
Extension cable 1m standard	RD877610
Extension cable 4m	RD877611
Solenoid relay magnetically latched 12V	RD100480
Solenoid relay magnetically latched 24V	RD100490
Mounting bracket for circuit breaker	868000
Above deck montage bolt	ISO 4762-A4-70-M6x100
Above deck montage bolt	ISO 4762-A4-70-M6x110
Above deck montage bolt	ISO 4762-A4-70-M6x120
Above deck montage bolt	ISO 4762-A4-70-M6x130
Above deck montage bolt	ISO 4762-A4-70-M6x140
Above deck montage bolt	ISO 4762-A4-70-M6x150
Above deck montage bolt	ISO 4762-A4-70-M6x160
Above deck montage bolt	ISO 4762- A4-70-M8x100
Above deck montage bolt	ISO 4762- A4-70-M8x110
Above deck montage bolt	ISO 4762- A4-70-M8x120
Above deck montage bolt	ISO 4762- A4-70-M8x130
Above deck montage bolt	ISO 4762- A4-70-M8x140
Above deck montage bolt	ISO 4762- A4-70-M8x150
Above deck montage bolt	ISO 4762- A4-70-M8x160
COMPACT SERVICE KIT 1; 28ST COMPACT A/D	710101
COMPACT SERVICE KIT 2; 40ST COMPACT A/D	710102
COMPACT SERVICE KIT 3; 46ST COMPACT A/D	710103
COMPACT SERVICE KIT 4; 52, 58/62 ST COMPACT A/D	710104
COMPACT SERVICE KIT 5; 68/728ST COMPACT A/D (300mm)	710105
COMPACT SERVICE KIT 11; 28,40 ,46, 52, 58/62ST COMPACT B/D	710111
COMPACT SERVICE KIT 12; 68/72ST COMPACT B/D (300mm)	710112
Andersen winch grease	500001-1

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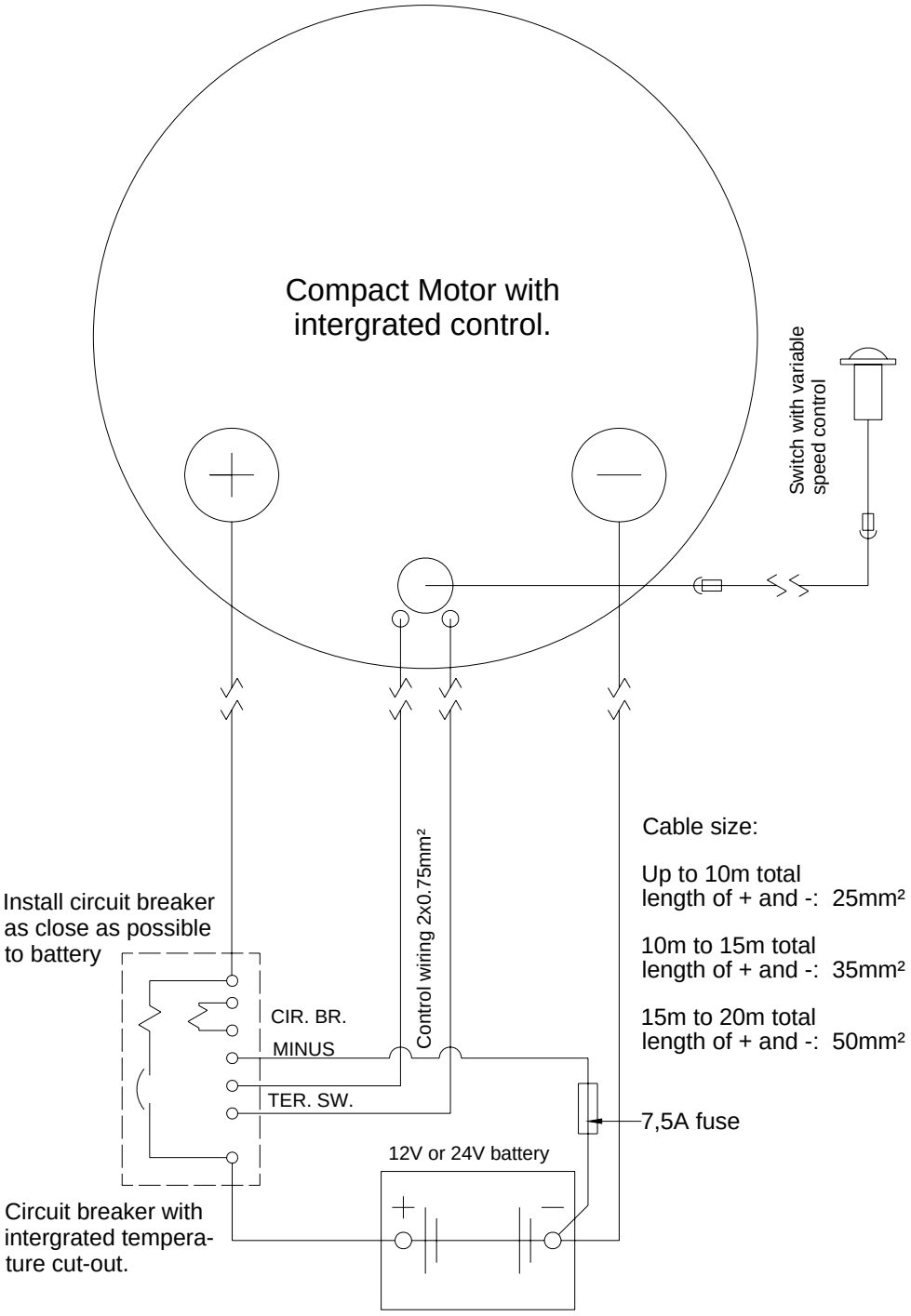
Wiring Diagram



Important

- **Incorrect polarity will permanently damage the motor.**
- **Never alter control cable wiring**
- **Ensure that the unit is installed with the provided circuit breaker with thermal cut-out protection.**
- **Always disconnect the power when not in use to avoid accidental activation.**

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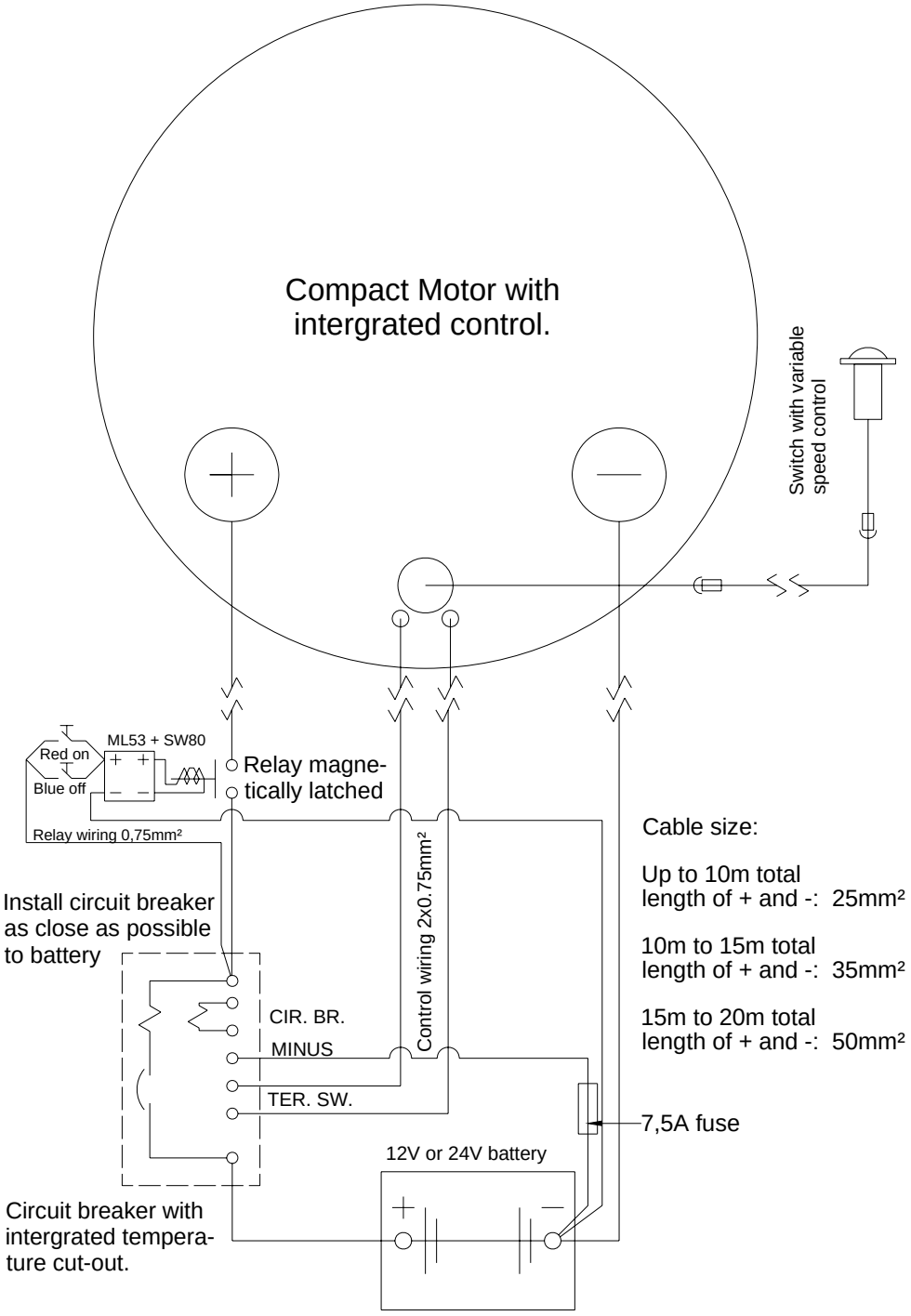
Low current switch installation (not standard)

With soleniod relay RD100480 or RD100490 mounted.



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General Service Instructions

The compact electric drive unit is lubricated with regular Andersen Winch Grease.
Although the unit is sealed, with time the grease will dry and the unit must be serviced, depending on the conditions of use, servicing is recommended every 2-3 years. A noisier motor is a sign that service is due.
In order to service the unit, it must be uninstalled, disassembled, cleaned and then re-lubricated.
It may be appropriate to change the motor seals at the same time - Contact your Andersen dealer for assistance.

Do not attempt to service the unit on board. Find an appropriate clean and stable area to work on the unit.
The gear assembly runs with Ø6mm ball-bearings - Care should be taken that these do not fall out during the service

Below deck Motors 28-62ST

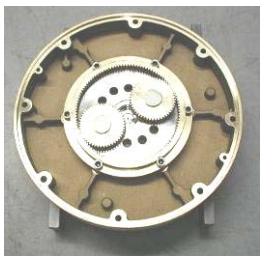
1. With the unit removed from the boat unscrew the 6 or 8 bolts from the bottom of the motor.
2. Separate the motor unit from the gear unit by lifting the gear unit up.
3. Clean the top of the motor including the gear, re-lubricate the gear with Andersen Winch Grease Andersen Winch Grease and place it to one side.
4. With the shaft pointing up, remove the 6 bolts connecting the flange to the gear housing, and remove the flange and the shaft.

5. Remove the pawls and springs.
6. Clean all parts and check for excessive wear.
7. Reassemble the shaft assembly applying a thin coat of Andersen Winch Grease and place to one side.
8. Clean the shaft base and the surrounding ball bearings on the gear housing. Do not remove the bearings.
9. Re-lubricate the bearings and shaft base
10. Reattach the shaft and flange onto the gear housing.
11. With the flange attached turn the motor so the flange is pointing down.
12. Supporting the motor, clean and Re-lubricate the gears with Andersen Winch Grease.

13. Reattach the motor to gear unit. (Use the bolts to help align the motor to the gears)

Above deck Motors 46/52/58/62ST

1. With the unit removed from the boat take off the stainless steel cover and unscrew the 2 bolts from the top of the unit.
2. Remove the motor unit from the gear unit. If difficult to separate, tap the motor with a plastic hammer while pulling apart.
3. Clean the top of the motor including the gear, re-lubricate the gear with Andersen winch grease and place it to one side.
4. Place the gear housing upside down on 2 blocks so that the gear on the top of the housing is not touching the work surface.



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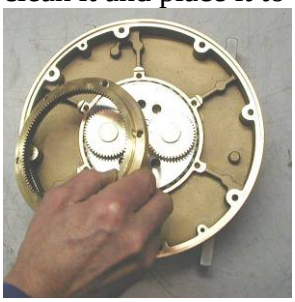
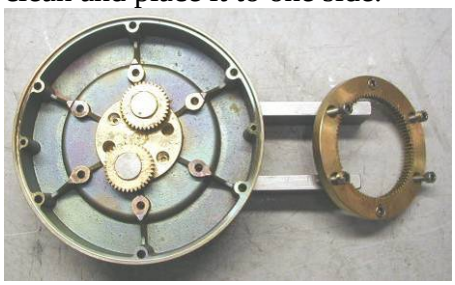
5. Remove the 6 bolts retaining the crown gear.
6. Carefully remove the crown gear, clean it and place it to one side.



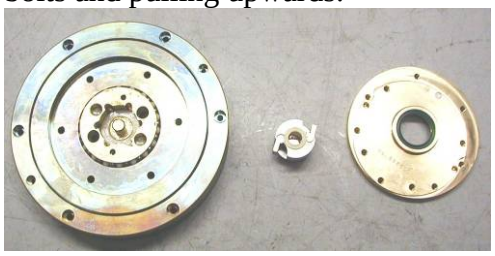
7. Clean the planet gears and the bearings, taking care not to dislodge the bearings.
8. Lubricate the gears and bearings and reassemble the crown gear.
9. Re-connect the motor unit to the gear unit. Replace the gasket if damaged. Use the bolts to align the motor to the gear unit.

Above deck Motors 28/40ST

1. With the unit removed from the boat take off the stainless steel cover and unscrew the 2 bolts from the top of the unit.
2. Remove the motor unit from the gear unit. If difficult to separate, tap the motor with a plastic hammer while pulling apart.
3. Clean the top of the motor including the gear, re-lubricate the gear with Andersen winch grease and place it to one side.
4. Place the gear housing upside down on 2 blocks so that the centre plate on the gear housing is supported by the blocks
5. Remove the 6 bolts from the crown gear.
6. Carefully remove the crown gear, clean and place it to one side.



7. Clean and lubricate the planet gears
8. While taking care to hold the top of the gear housing, turn the motor around.
9. Pull the top plate out by attaching two bolts and pulling upwards.



10. Remove the connecting ratchet shaft.
11. Remove the pawls and springs.
12. Clean all parts and check for excessive wear.
13. Reassemble the ratchet shaft assembly lubricating lightly and place to one side.
14. Clean the shaft base and the surrounding ball bearings on the gear housing. Do not remove the bearings.
15. Re-lubricate the bearings and shaft base
16. Check seals and o-rings for wear and replace if necessary.
17. Place the ratchet shaft in the shaft base and replace the top plate checking that the o-ring is sitting in its groove.
18. While taking care to hold the top plate of the gear housing, turn the motor around and support the plate with 2 blocks.
19. Reattach the crown gear using a locking liquid on the bolts

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20. Re-connect the motor unit to the gear unit. Replace the gasket if damaged. Use the bolts to align the motor to the gear unit.

Below Deck 68/72ST

1. With the unit removed from the boat unscrew the 8 bolts from the bottom of the motor.
2. Remove the motor unit from the gear unit by pulling the gear unit up. If difficult to separate, tap the motor with a plastic hammer while pulling apart.
3. Clean the top of the motor including the gear, re-lubricate the gear with Andersen Winch Grease and place it to one side.
4. Place the gear housing upside down on 2 blocks so that the gear on the top of the housing is not touching the work surface.
5. Remove the 6 bolts retaining the crown gear.
6. Carefully remove the crown gear, clean it and place it to one side.
7. Clean the planet gears and the bearings being careful not to dislodge the bearings.
8. Lubricate the gears and bearings and reassemble the crown gear.
9. Re-connect the motor unit to the gear unit.

Above Deck 68/72ST

1. Above deck 68ST winches have a lubricating hole on the top of the gear unit. To lubricate remove the winch and unscrew the stop nut.
2. The thread is identical to the thread on an Andersen winch grease tube. Screw the grease tube into the motor.
3. Taking care to avoid the moving gear on the top of the motor. Gently squeeze the equivalent of a 2-3cm strip of grease into the hole while slowly activating the motor.
4. Re-screw the stop nut into the gear unit and re-attach the winch.

After approximately 5 years of use, disassemble, clean and service the unit as described for 46-58ST above deck winches.

Sail Handling by ANDERSEN Stainless Steel Winches
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Limited Warranty

1.1 ANDERSEN issue a three-year warranty on all their products covering manufacturing and material defects on condition that the products are used in normal fashion. The warranty shall apply for three years from the moment ANDERSEN sell the product concerned (to the first buyer).

1.2 Within the period of the warranty, and in accordance with the terms of the warranty, ANDERSEN undertake to replace or repair all defective components, which have been used in normal fashion.

1.3 The warranty is however subject to the limitations and exceptions outlined below.

Conditions and limitations:

2.1 ANDERSEN´S liability shall be limited to repair or replacement of components, which are defective owing to manufacturing or material defects.

2.2 ANDERSEN assume no other liability than this, not even liability for indirect losses caused by defect concerned, including operating losses, loss of profits, or damage caused to real property or moveable property occurring while the product concerned is in the possession of the Buyer.

2.3 The Buyer alone shall bear the responsibility and risk involved as to whether the products are suitable for the application intended. ANDERSEN assume no liability in this connection.

2.4 ANDERSEN assume no liability for defects which occur due to use of their products for purposes for which they are not intended, or for defects which occur owing to incorrect installation, corrosion, ultraviolet degradation, lack of maintenance, or any alteration or repair of the product carried out incorrectly by the Buyer. Finally, ANDERSEN assume no liability for normal wear and tear, or for depreciation in value.

2.5 ANDERSEN do not assume any liability for service carried out by anyone other than authorised ANDERSEN representatives, unless such service is carried out pursuant to guidelines laid down by ANDERSEN and in accordance with good craftsmanship.

2.6 The buyer shall inform ANDERSEN in writing of any defects with no undue delay once defects have been registered. Products being dealt with under the warranty shall be returned to ANDERSEN for repair unless any other agreement has been reached in writing.

2.7 ANDERSEN shall not cover costs incurred by the Buyer in connection with the transport or wages involved in a warranty case. The Buyer in full shall meet such costs.

Exceptions:

3.1 The warranty is only valid for one year in respect of components bought for the products concerned, such as electric motors, electric equipment, hydraulic pumps, motors and valves.

3.2 ANDERSEN assume no liability for consequential damage of ships, equipment, property or people caused by defects in ANDERSEN products.

3.3 The company’s products are subject to continuous development, and consequently ANDERSEN reserve the right to change designs and specifications without prior notice.

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