ANDERSEN

STAINLESS STEEL WINCHES

Service Kit for 28, 34, 40ST "Above Deck" Compact Motor™

Instructions for Lip Seal Replacement and Gearbox Service

RØNSTAN

RON-SKI-RA710024-Rev.2.1

ANDERSEN
STAINLESS STEEL WINCHES

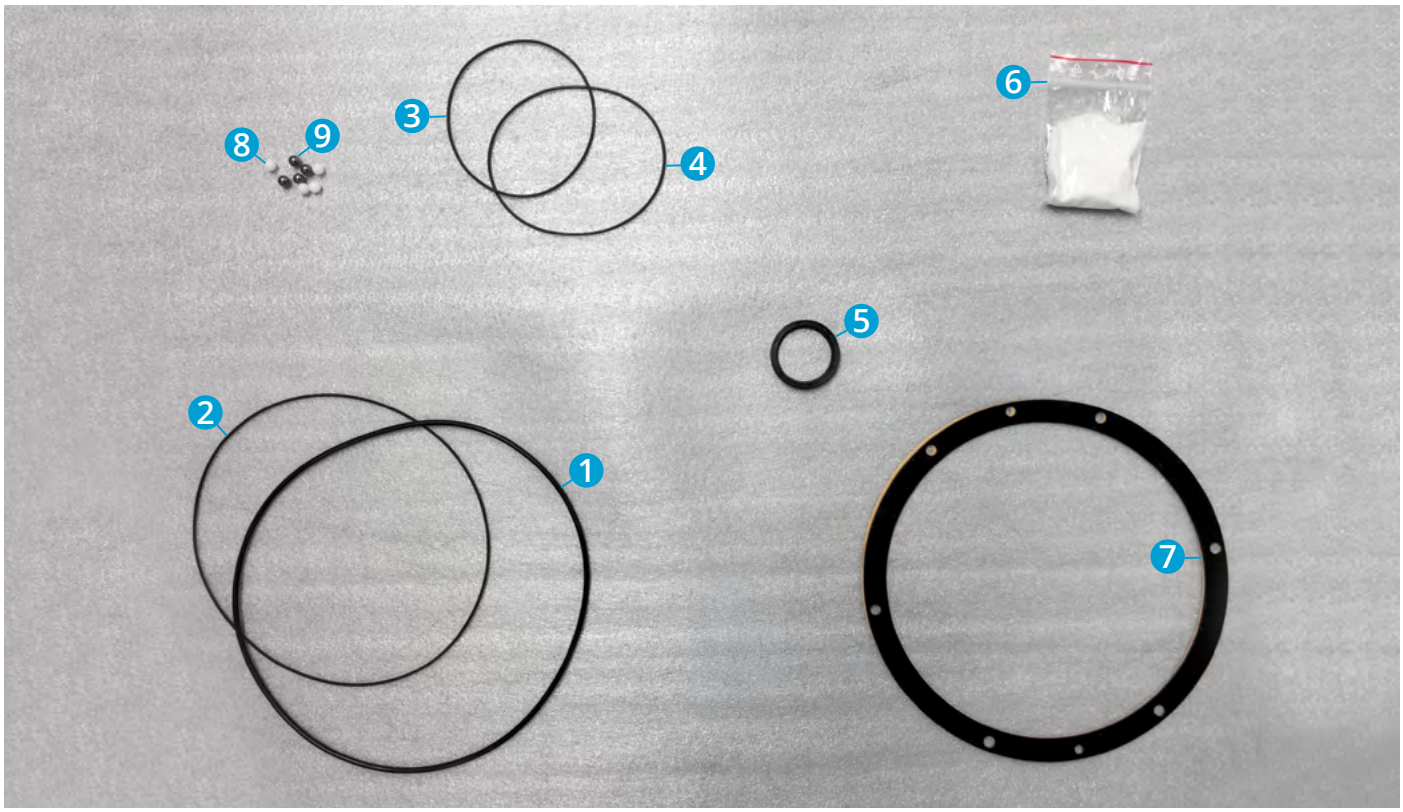
RA710024 Service Kit for 28, 34, 40ST "Above Deck" Compact Motor™

Instructions for Lip Seal Replacement and Gearbox Service

We recommend replacement of the drive shaft lip seal on your Compact Motor™ every 3 to 5 years, depending on usage, in order to avoid water ingress and ensure a long and trouble-free service life.

Safety First! Always disconnect power before performing any service or maintenance work on an electric winch.

Service Kit Contents



Please take a moment to familiarise yourself with the contents of the RA710024 service kit.

1. RD877504 NBR O-ring 184.5mm OD x Ø 3mm
2. RD877501 NBR O-ring 157mm OD x Ø 1.5mm
3. RD877506 NBR O-ring 81mm OD x Ø 1.5mm for 40ST only
4. RD877507 NBR O-ring 90mm OD x Ø 1.5mm for 28ST and 34ST only
5. RD100169 Lip seal 30mm x 37mm x 4mm
6. 980700 Klüber Isoflex® TOPAS NB52 Grease
7. 821900 Gasket
8. 724902 Acetal ball bearings, 4 pcs.
9. 724900 Stainless steel ball bearings, 4 pcs.

Isoflex® is a registered trademark of Klüber Lubrication München SE & Co. KG

RONSTAN

Optional Items: (*recommended - may be ordered separately*)

Part no. 821811
Pair of support blocks
(12mm x 40mm x 250mm)

Part no. 821810
Mounting tool for Lip Seal

Part no. RA500001-1
Andersen Winch Grease

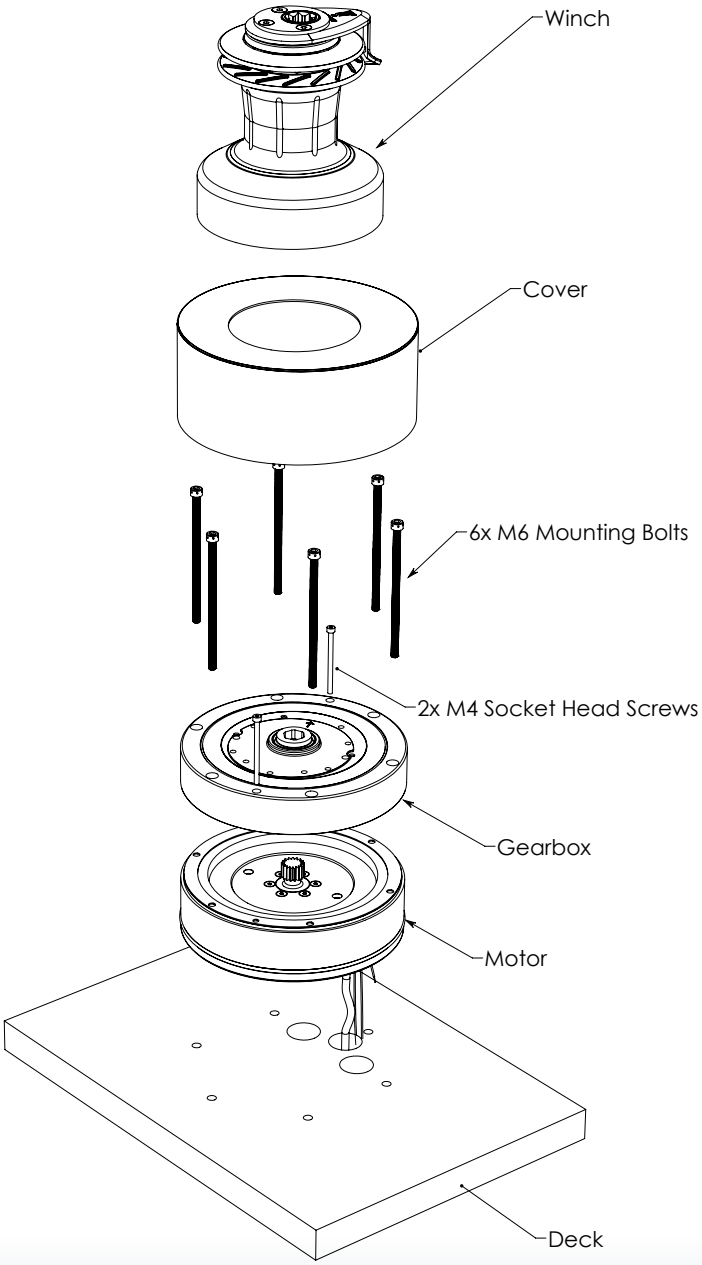
Other items that you will need:

- Allen keys for M4 and M6 socket head screws
- Small flat screw driver
- Mallet or soft hammer
- Soft cloth or paper towels
- Andersen Winch Grease – Part no. RA500001-1 (may be ordered separately if you don't already have it on board)
- Small brush for grease
- Mineral spirits (white spirits) for cleaning and degreasing. Do not use alcohol or other solvents for cleaning.
- Threadlock, medium strength. To allow for the fasteners to still be removable for future servicing.

Getting Started

1. AFTER DISCONNECTING POWER, remove the winch drum to access the mounting screws and remove the winch from the motor/gearbox unit – if in doubt, see the service manual for your winch (available for download from our website at andersenwinches.com).
2. After removing the winch, slide the stainless steel cover up to remove it and expose the motor/gearbox unit.
3. Remove the 6x M6 mounting bolts that secure the motor/gearbox to the deck.
4. Disconnect all wiring connections.
5. Leaving in place the 2x M4 socket head screws that join the motor and gearbox, remove the motor/gearbox unit from the deck.

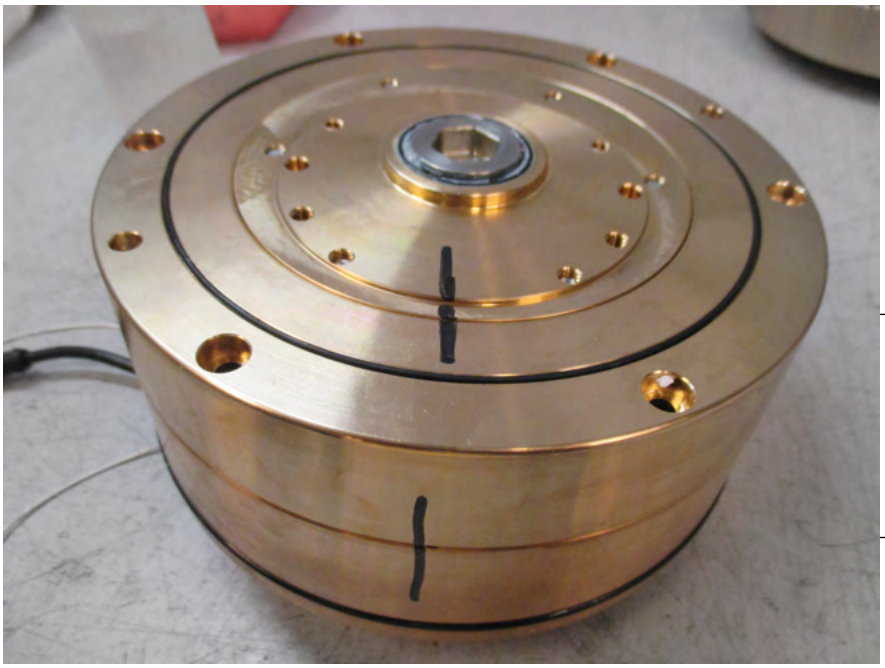
Note: If there is a strong adhesive or sealant bond between the motor and deck, it may be preferable not to remove the motor, especially if mounted on a teak deck. In this case, the motor may be left on the deck while carrying out this service procedure. Proceed anyway to the next steps and follow the instructions for disassembly of the gearbox from the motor.



STEP 1

Make reference marks to facilitate re-assembly.

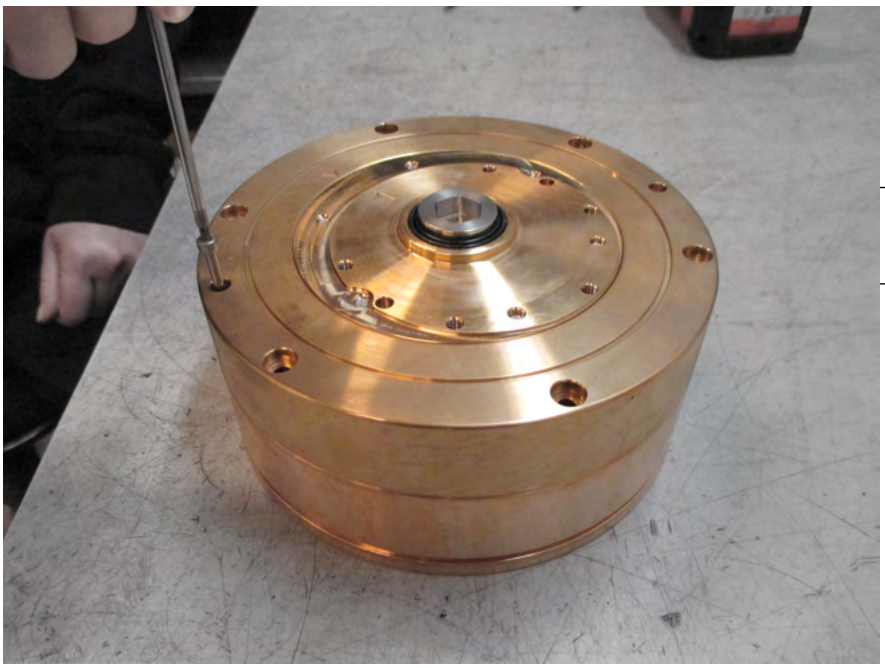
Before disassembling the motor/gearbox unit, make two reference marks as shown to facilitate re-assembly.



STEP 2

Remove screws joining gearbox to motor.

Remove the 2x M4 socket head screws that hold the motor and gearbox together.



STEP 3

Separate the gearbox from the motor.

Gently separate the gearbox from the motor with the help of a flat screwdriver, tapping gently with a soft hammer. Lift the gearbox clear of the motor and, with the open side facing up, place it on a pair of support blocks so that it is not resting on the drive gear.

The support blocks should be 12mm wide x 40mm high x 250mm long – a pair may be ordered separately as part number 821811. The support blocks most be sufficiently close together to support the central gearbox cover plate and prevent it from dropping down onto the workbench. Supporting the gearbox at this height will allow the planetary drive gear unit to be removed later without losing the ball bearings (see later steps).

Central gearbox cover plate

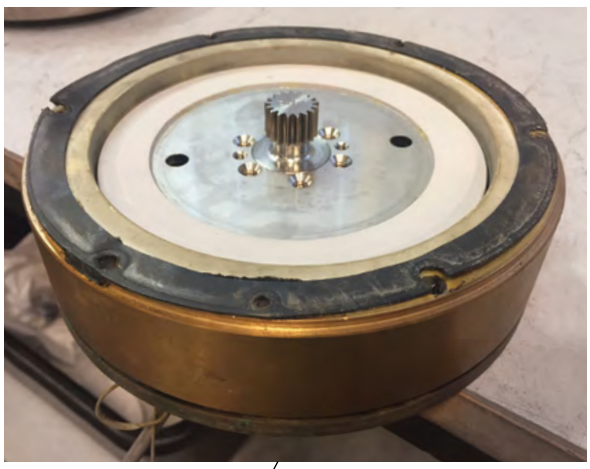
Place gearbox open side facing up

STEP 4

Clean the motor unit and gearbox.

Motor Unit: Remove and discard the old gasket. Gently scrape away any remaining adhesive residue, taking care not to let any particles fall into the motor. Using a soft dry cloth or tack cloth, with no degreaser or spirits, remove any dirt or grease from the exposed inside surfaces of the motor unit. Take extreme care not to damage the teeth of the stainless steel drive gear.

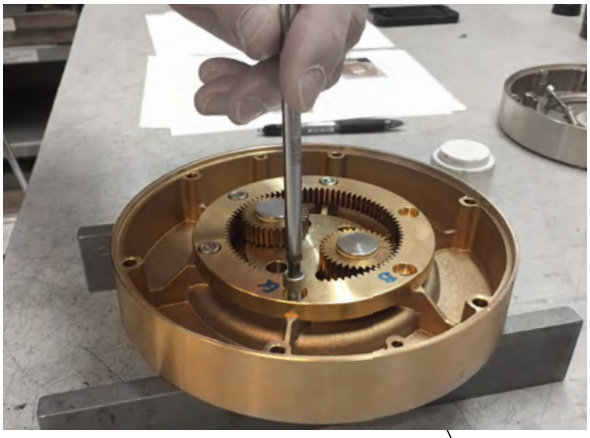
Gearbox: Wipe the inside of the gearbox and the planetary gears clean of dirt and grease using a soft cloth and degreaser.



Old gasket

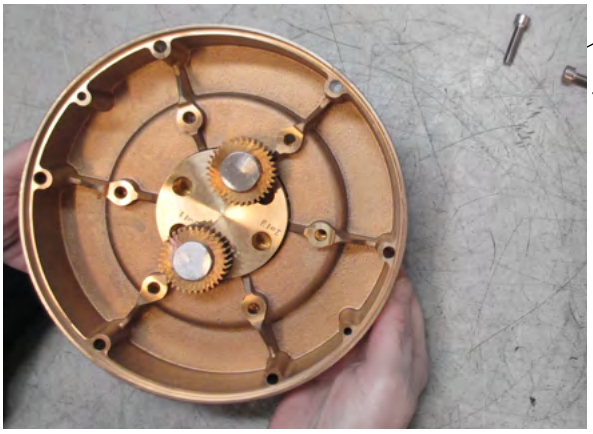
STEP 5
Remove gear ring.

With the gearbox resting firmly on the support blocks, remove the 6x M6 socket head screws and then remove the gear ring.

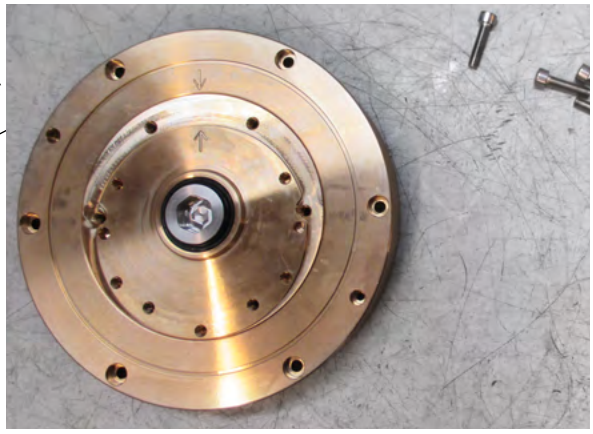


STEP 6
Remove gearbox cover plate.

Hold the gearbox together from below to avoid the gearbox cover plate from dropping out as you lift the gearbox. Turn the gearbox over so the closed side is facing up, and place it directly on the workbench.



Carefully turn the gearbox



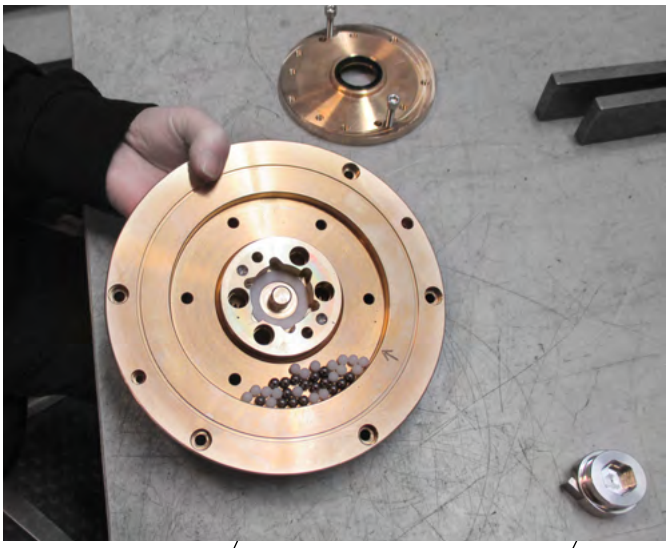
Use two of the M6 screws removed from the gear ring in Step 5 to engage the gearbox cover plate, then pull upwards and remove it.

STEP 7

Remove the pawl drive, ball bearings and planetary drive gear unit.

While supporting the planetary drive gear unit from below with your hand, tilt the gearbox very slightly and carefully perform the following actions in sequence:

1. Remove the pawl drive by pulling gently upward (for 28ST, 34ST and 40ST winches this part can be recognised by its hexagonal female socket).
2. Carefully remove the balls and put them in a safe place. There are 18 stainless steel balls and 18 acetal balls.
3. Remove the planetary drive gear unit from the underside of the gearbox.



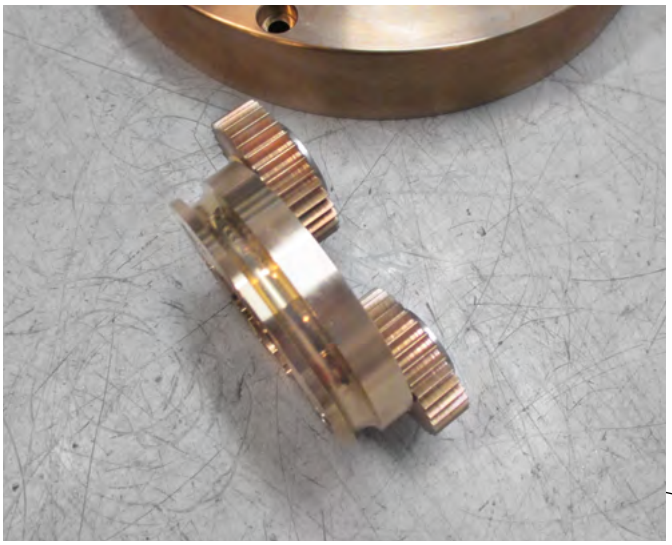
Ball bearings *Pawl drive*

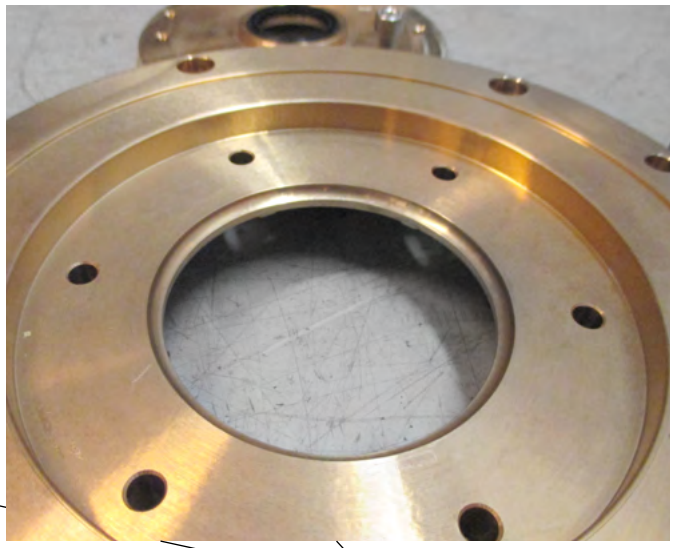
Planetary drive gear unit removed

STEP 8

Clean the pawl drive, ball bearings and races.

Clean and degrease the ball bearings and the ball races in the planetary drive gear unit and gearbox. Clean the pawl drive, checking the pawls and springs for wear.



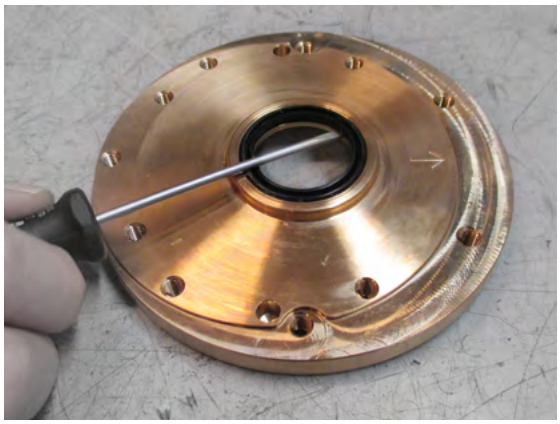


Ball bearing races

STEP 9

Remove the old lip seal.

Remove the old lip seal from the gearbox cover plate by prying it out with the help of a flat screwdriver, taking care not to scratch or gouge the metal surface around it. The seal will be damaged/destroyed during this operation and can not be re-used. Clean the recess in the cover plate thoroughly after removing the old lip seal.



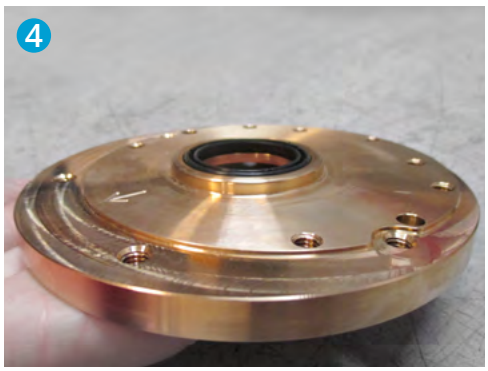
STEP 10

Fit the new lip seal.

Locate the new lip seal, part number RD100169 (provided in the Service Kit). With its open groove facing up, align the lip seal accurately with the recess in the gearbox cover plate and gently press it into the recess so that it remains perfectly flush with the external surface of the cover plate. Do not use any grease during this step.

The optional mounting tool, part number 821810, can be used to help fit the lip seal.

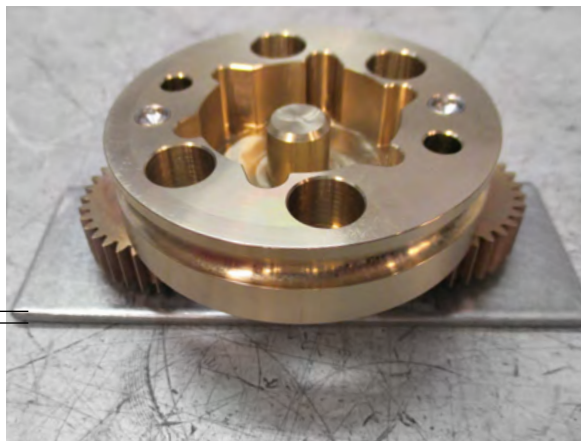
1. Check which end of the tool has the correct diameter to fit your lip seal. Place the new lip seal, with its open groove facing up, onto that end of the tool.
2. Use the tool to insert the seal into the recess of the gearbox cover plate. The end of the tool will fit in the hole, accurately aligning the seal as it is inserted.
3. Tap with a soft hammer to fit the seal perfectly and completely into position, flush with the external surface of the gearbox.
4. The seal must be perfectly flush with the cover plate, otherwise the drive gear and attached planetary gears will not engage properly when re-assembled.



STEP 11

Insert planetary drive gear unit and prepare to load ball bearings.

Place the planetary drive gear unit on a 3mm plate as shown, then carefully place the gearbox over it. The supporting plate ensures that the gear unit will sit slightly proud of the gearbox, in the correct position for easy loading of the ball bearings.

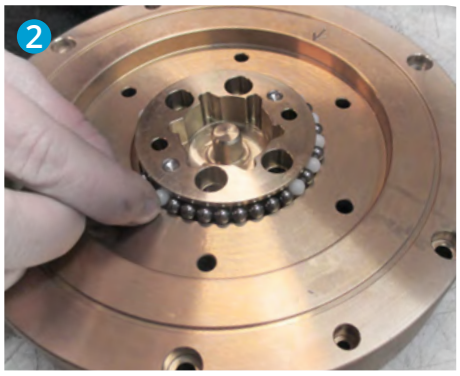


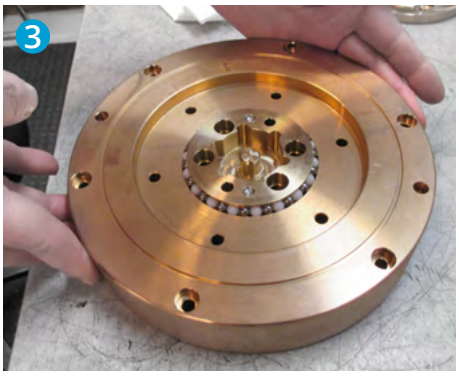
Gearbox in position, ball race ready for loading

STEP 12

Load ball bearings.

Place the stainless steel balls in the ball race (fig.1), then insert the white acetal balls between them (fig. 2) so the stainless balls do not touch each other. There are 18 stainless steel ball and 18 acetal balls required – four spares of each are provided in the Service Kit. For best results be patient and go slowly, placing the balls gently into position.



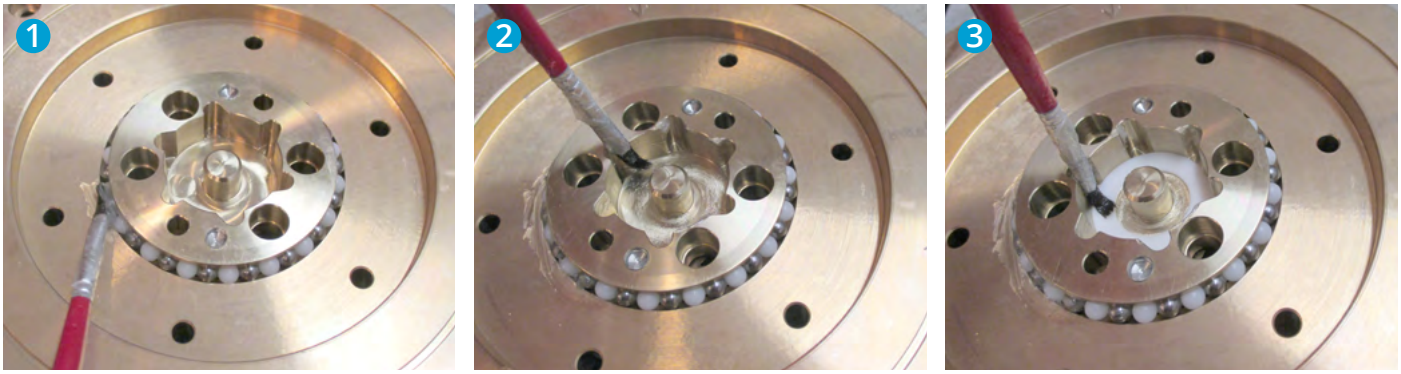


When all balls are loaded, lift the gearbox directly upward, allowing the planetary drive unit to drop into position and correctly retain the ball bearings. Now place the gearbox directly on the workbench (fig.3), without the 3mm supporting plate used in Step 11.

STEP 13

Lubricate ball bearings.

Using a small brush, apply Andersen Winch Grease to the ball bearings (fig.1). Apply the same grease below (fig.2) and above (fig.3) the white washer in the pawl drive recess.

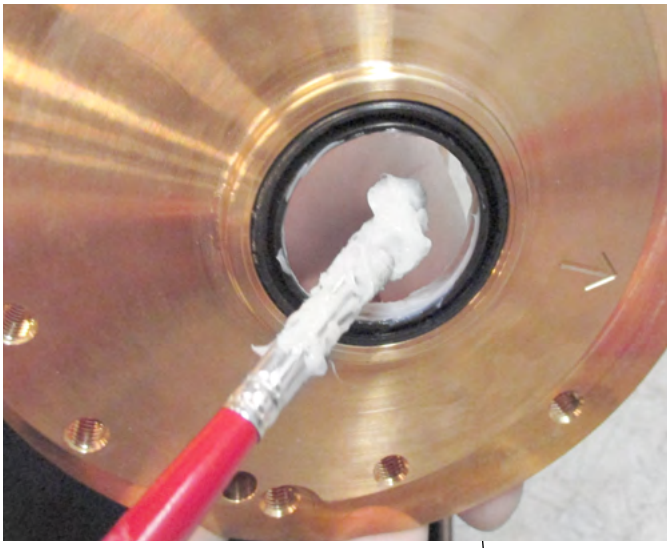


STEP 14

Lubricate the new lip seal and the ball race in the gearbox cover plate.

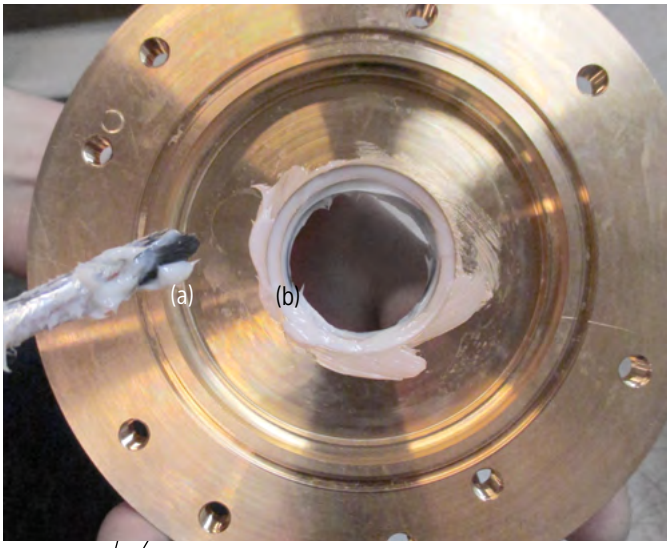
Locate the TOPAS NB52 grease provided in the Service Kit, part number 980700, and apply liberally to the lip seal, the adjacent internal surface of the cover plate and the ball race.

Cover plate, external side



Liberal application of TOPAS NB52 grease to lip seal

Cover plate, internal side



Liberal application of TOPAS NB52 grease to ball race (a) and internal adjacent surface of cover plate (b)

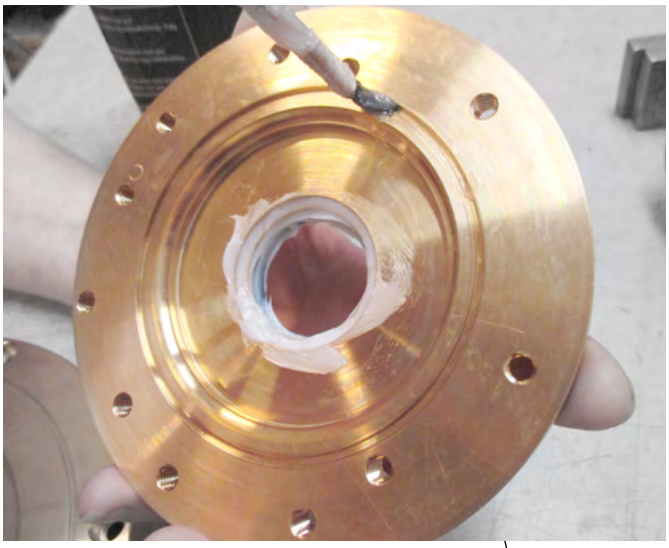
STEP 15

Replace O-ring RD877506 / RD877507.

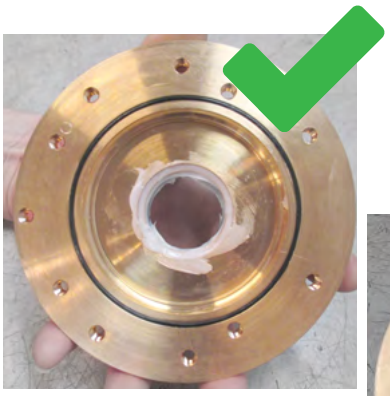
Apply TOPAS NB52 grease to the O-ring recess in the gearbox cover plate. Locate the correct new O-ring for your winch (provided in the Service Kit).

- For 28ST or 34ST winch use RD877507 O-ring 90mm OD x Ø 1.5mm
- For 40ST winch use RD877506 O-ring 81mm OD x Ø 1.5mm

Dry-fit the new O-ring by gently pushing and stretching into position. Remove the O-ring and apply a layer of TOPAS NB52 grease to the O-ring recess, then fit the O-ring in place again and apply a light coating of grease. This procedure will ensure that the O-ring remains in place during assembly.



Apply TOPAS NB52 grease to O-ring recess



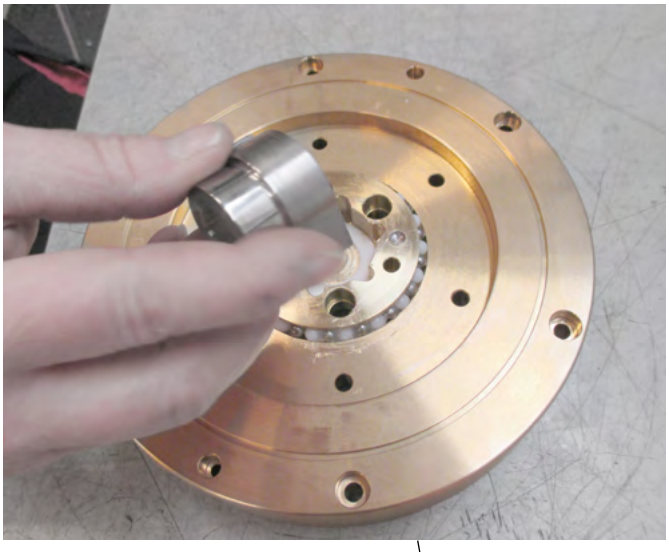
Correct fit

Incorrect fit

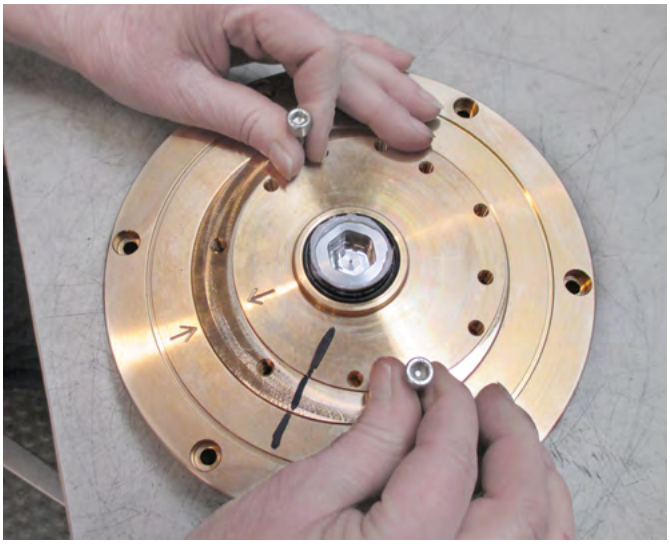
STEP 16

Lubricate and re-assemble pawl drive and cover plate.

Apply a thin coat of Andersen Winch Grease to the stainless steel pawl drive, and place it back in its recess. Use two M6 screws again to engage and lift the cover plate. Place it back in its original position over the pawl drive, using your original alignment marks as a reference. Then remove the two screws.



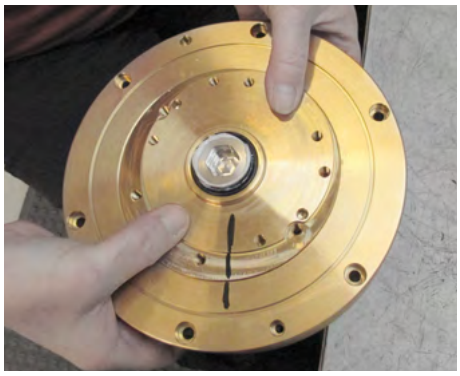
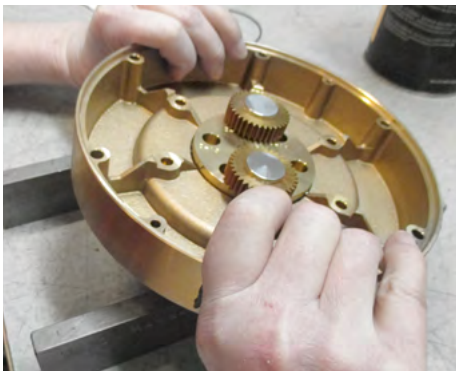
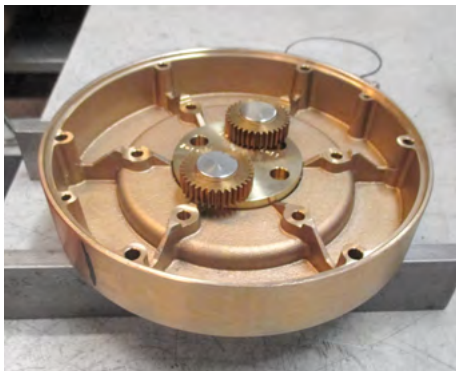
Pawl drive recess



STEP 17

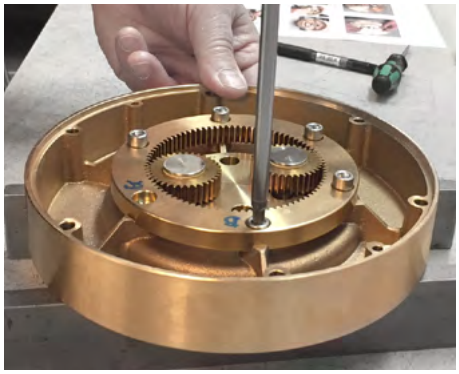
Re-assemble and close gearbox.

Hold the cover plate and the gearbox together, turn upside down and place on the two support blocks. Again, ensure that the support blocks are close enough to support the central drive gear cover plate so that it does not drop down onto the workbench.

Place the gear ring in position (recesses for socket head screws facing up) and secure with the 6 x M6 socket head screws. Use a drop of Threadlock, medium strength, on each screw.



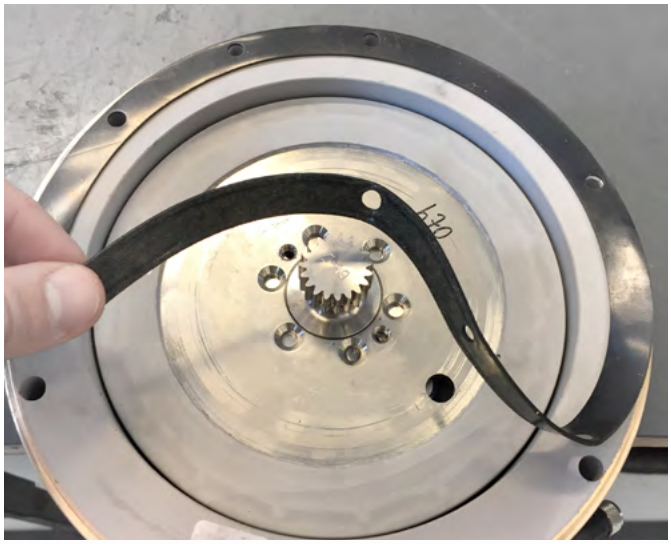
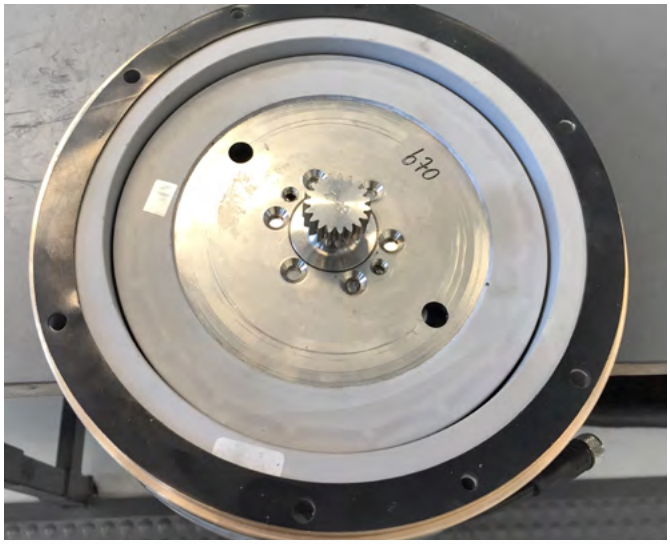


Rotate the gears by hand – they should rotate smoothly without binding.

STEP 18

Replace gasket on motor.

Locate the new gasket, part number 821900 (provided with the Service Kit). Ensure that the mounting surface is clean and free of any residue from the old gasket. Place the new gasket in position with the adhesive side down, taking care to align the hole locations before peeling off the backing paper from the adhesive side.

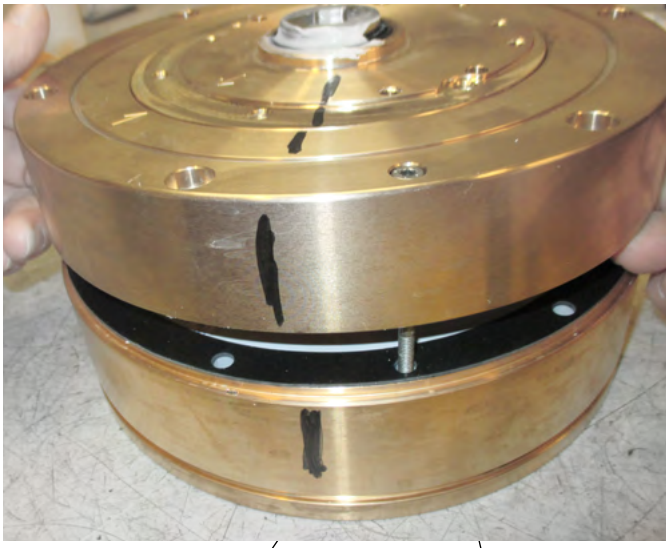



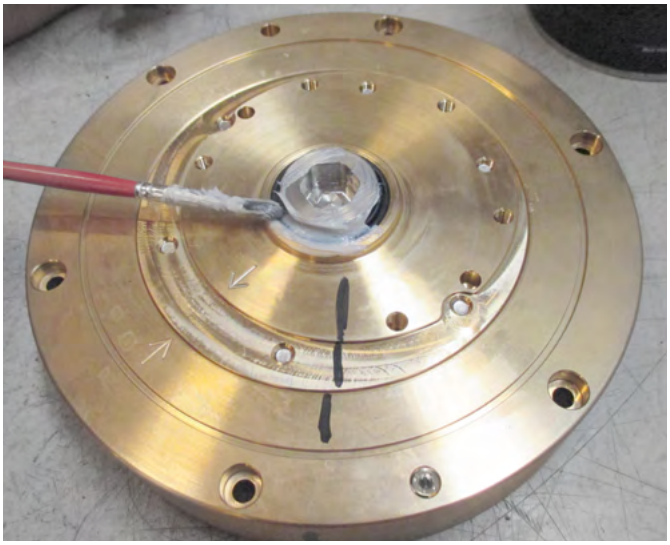
STEP 19

Re-assemble gearbox and motor and grease the lip seal.

Position the gearbox above the motor with the pawl drive socket facing up, using your original alignment marks as a reference. Lower the gearbox into position – you may need to gently rock the assembly to allow the planetary gears to engage as the gearbox drops into position. Insert and tighten the 2x M4 socket head screws to secure the motor/gearbox assembly.

Liberally apply TOPAS NB52 grease to the lip seal.

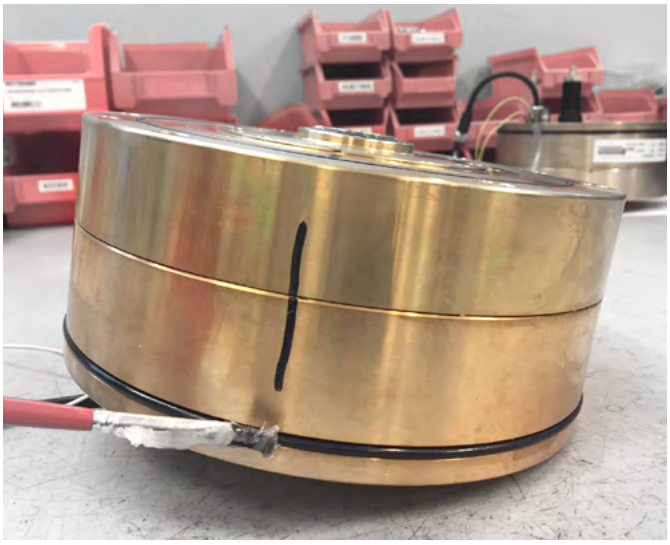




STEP 20

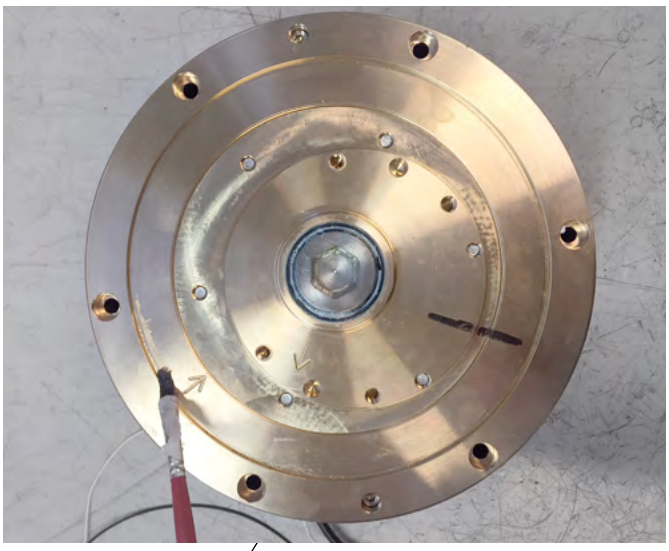
Replace outer O-Ring RD877504.

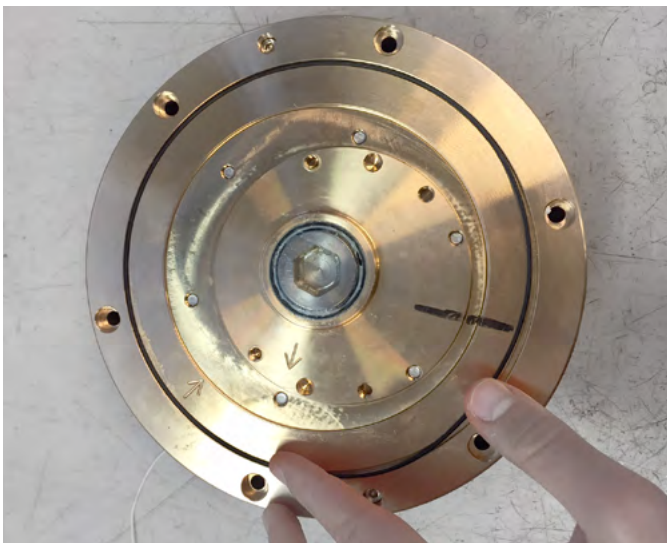
Locate the new O-ring, part number RD877504 (provided in the Service Kit). Fit the new O-ring into the recess in the motor housing and apply a layer of Andersen Winch Grease.



STEP 21
Replace Top O-Ring RD877501.

Apply Andersen Winch Grease to the recess on the top surface of the gearbox. Locate the new O-ring, part number RD877501 (provided in the Service Kit). Fit the new O-ring in position.





Apply Andersen Winch Grease to O-ring recess

STEP 22
Re-install motor/gearbox unit.

Secure the motor/gearbox unit to the deck with the 6x M6 mounting bolts. Connect push button and power cables, taking care to maintain correct polarity. **Note: incorrect connection of power cables will permanently damage the motor.** See the Compact Motor™ Electric Winch Product Manual for further information (available for download from our website at andersenwinches.com).

Connect power to the motor and test by running at half speed for a few seconds. The motor and gearbox operation should be smooth and quiet.

Safety First! Disconnect power from the motor again before proceeding to the next step.

STEP 23
Fit stainless steel cover and re-install winch.

Slide the stainless steel base cover down over the motor/gearbox unit and re-install the winch on top of the gearbox.

- Test the winch by spinning the drum by hand and operating the winch manually with a handle. The winch should operate smoothly in both gears.
- Connect power to the motor and test the winch with no rope and no load. It should operate smoothly.

Congratulations! You have completed an important maintenance procedure, and your Compact Motor™ electric winch is now ready to deliver many more seasons of enjoyable sailing.

Notes

ANDERSEN
STAINLESS STEEL WINCHES

Contact

Andersen Stainless Steel Winches® **are manufactured by** Ronstan Denmark ApS.

Jægervænget 36
7100 Vejle
Denmark

www.ronstan.com/andersen-winches
office@ronstan.com.au

RONSTAN