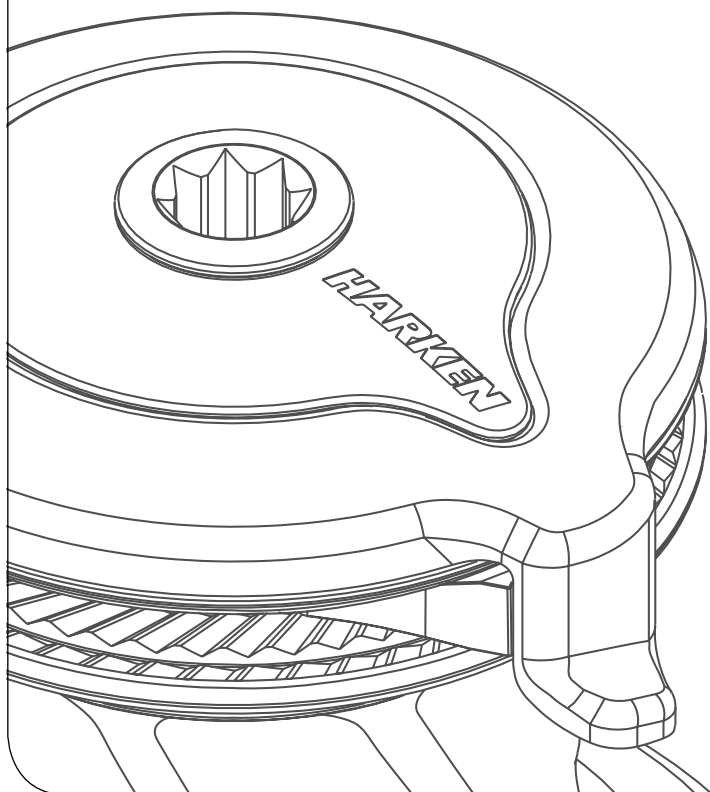


Installation and Maintenance Manual

MRW-04

Powered Radial Winch 60.3 ST E/HY



HARKEN®

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Introduction

This manual gives technical information on winch installation and maintenance, including disassembling and reassembling.

This information is DESTINED EXCLUSIVELY for specialised personnel or expert users.

Installation, disassembling and reassembling of the winch by personnel who are not experts may cause serious damage to users and those in the vicinity of the winch.

Harken® accepts no responsibility for defective installation or reassembly of its winches.

In case of doubt the Harken® Tech Service is at your disposal at techservice@harken.it

This Manual is available only in English. If you do not fully understand the English language, do not carry out the operations described in this Manual.

Technical characteristics

| | Power ratio | Gear ratio |
|-----------|-------------|------------|
| 1st speed | 9,20 : 1 | 2,20 : 1 |
| 2nd speed | 20,30 : 1 | 4,80 : 1 |
| 3rd speed | 61,00 : 1 | 14,40 : 1 |

The theoretical power ratio does not take friction into account.

Performance data

Winch 60.3 ST E (electric)

| | horizontal motor | | | | | |
|----------------------|------------------|-----------|-----------|---------------|-----------|-----------|
| | 12 V (1500 W) | | | 24 V (2000 W) | | |
| | 1st speed | 2nd speed | 3rd speed | 1st speed | 2nd speed | 3rd speed |
| line speed (m/min)** | 38,8 | 17,7 | 5,9 | 46,8 | 21,4 | 7,1 |
| max load (Kg) | 290 | 600 | 1800 | 290 | 600 | 1800 |

***Line speed is measured with no load*

| | vertical motor | | | | | |
|----------------------|----------------|-----------|-----------|---------------|-----------|-----------|
| | 12 V (1500 W) | | | 24 V (2000 W) | | |
| | 1st speed | 2nd speed | 3rd speed | 1st speed | 2nd speed | 3rd speed |
| line speed (m/min)** | 44,5 | 20,3 | 6,8 | 53,5 | 24,4 | 8,1 |
| max load (Kg) | 290 | 600 | 1800 | 290 | 600 | 1800 |

***Line speed is measured with no load*

| | | motor nominal power (W) | | current absorption at winch MWL (A) | |
|-----------------|------------|-------------------------|------|-------------------------------------|------|
| | | 12 V | 24 V | 12 V | 24 V |
| winch 60.3 ST E | horizontal | 1500 | 2000 | 250 | 140 |
| | vertical | | | 225 | 120 |

Winch 60.3 ST HY (hydraulic)

| | 1st speed | 2nd speed | 3rd speed |
|---------------------|-----------|-----------|-----------|
| line speed (m/min)* | 66,5 | 30,3 | 10,1 |
| max load (Kg)** | 290 | 600 | 1800 |

* at 20 l/min oil flow (5,28 Gal/min)

** at 140 bar at 20 l/min

NOTE

The ratio of the line load - pressure is evaluated at nominal flow rate.

The performance is evaluated measuring the pressure and flow on the motor ports.

The performance data are based on oil with a viscosity of 35mm²/s [165 SUS] and temperature of 50°C [120°F].

Weight

| | ST A EH | ST C/CW EH | ST A EV | ST C/CW EV | ST A H | ST C/CW H |
|-------------|---------|------------|---------|------------|--------|-----------|
| weight (Kg) | 23,2 | 26,9 | 22,1 | 25,9 | 19,2 | 22,9 |

| | ST BBB EH | ST CCC EH | ST BBB EV | ST CCC EV | ST BBB H | ST CCC H |
|-------------|-----------|-----------|-----------|-----------|----------|----------|
| weight (Kg) | 27,7 | 27,7 | 28,4 | 28,4 | 24,4 | 24,4 |

Versions:

A = drum in anodised aluminium

C = drum in chrome bronze

CW = chrome/white

BBB = all bronze

CCC = All-Chrome bronze

EH = horizontal electric winch

EV = vertical electric winch

H = vertical hydraulic winch

Maximum working load



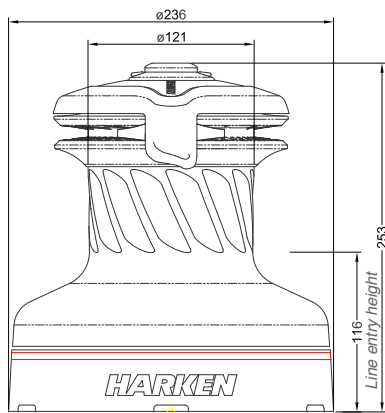
WARNING!

The maximum working load (MWL) for the 60.3 ST Radial Winch is 1800 Kg (3968 lb)

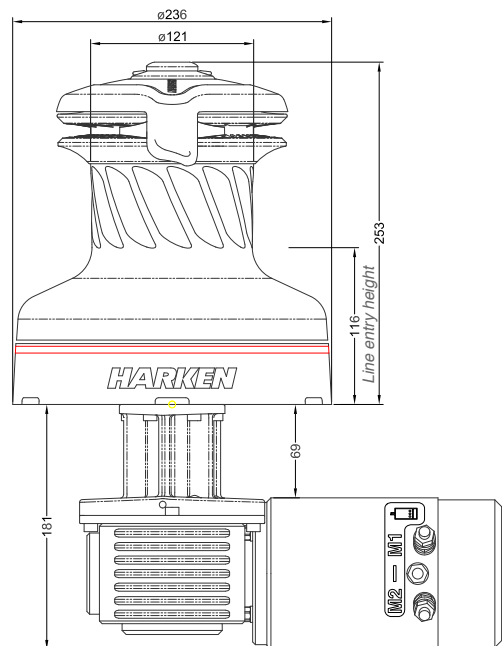
Subjecting the winch to loads above the maximum working load can cause the winch to fail or pull off the deck suddenly and unexpectedly during high loads causing severe injury or death.

Outline

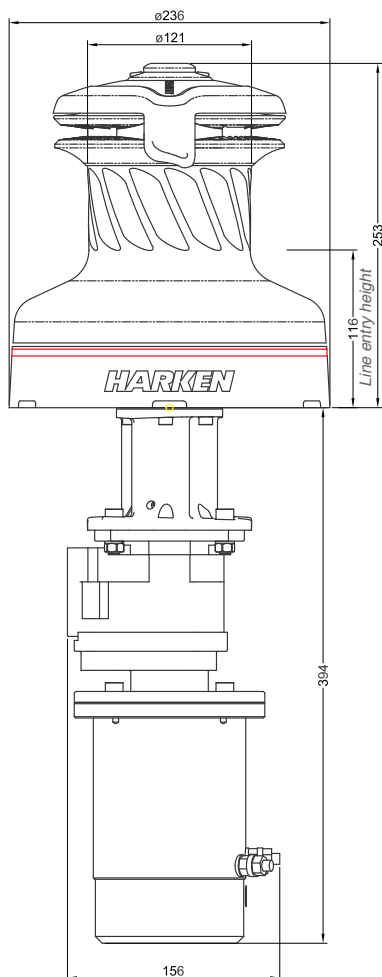
Winch 60.3 ST E/HY



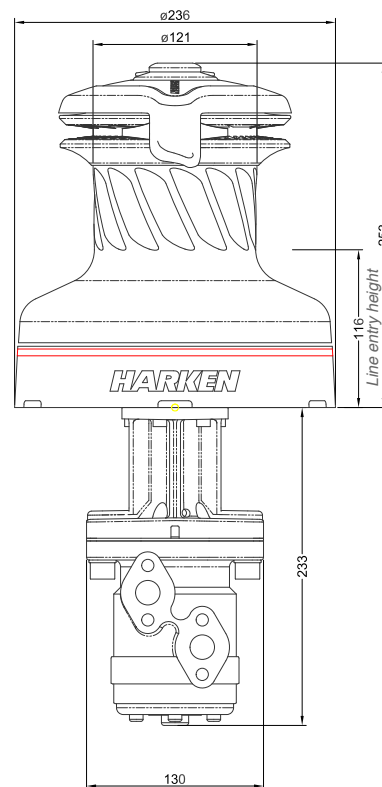
Horizontal electric motor (12 V / 24 V)



Vertical electric motor (12 V / 24 V)



Hydraulic motor



Installation

The winch must be installed on a flat area of the deck, reinforced if necessary to bear a load equal to at least twice the maximum working load of the winch.

It is the installer's responsibility to carry out all structural tests needed to ensure that the deck can bear the load.

Harken® does not supply the screws needed to install the winch since these may vary depending on the deck on which it is to be installed.

It is the installer's responsibility to choose the correct screws taking account of the loads they will have to bear.

Harken® assumes no responsibility for incorrect installation of its winches or for an incorrect choice of mounting screws.



DANGER!

Incorrect installation of the winch may cause severe injury or death. Consult the yard that built the boat in the case of doubt over the correct positioning of the winch.



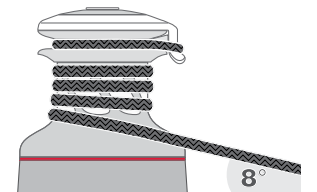
WARNING!

Failure to use the correct number and type of mounting fasteners or failure to ensure the correct deck strength can result in the winch pulling off the deck suddenly and unexpectedly during high loads causing severe injury or death.



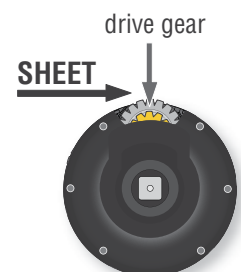
WARNING!

Verify the entry angle of the sheet. This must be 8° with tolerance of $\pm 2^\circ$, to avoid sheet overrides and damaging the winch or making the winch inoperable leading to loss of control of the boat which can lead to severe injury or death.



WARNING!

Mount the winch on the deck so that the drive gear is positioned where the sheet enters the winch drum. Incorrect position of drive gear can weaken winch leading to failure which can cause an accident leading to severe injury or death.



Once you have chosen the correct mounting position for the winch on the deck proceed with installation.

After correctly positioning the final drive gear with respect to the load, check that the motor, gearing, electrical wiring and/or hydraulic pipes can be housed below decks. To help find the optimal compromise, remember that, to make the installation of the motor easier, it can be coupled to the winch in any one of four different positions that differ by 60° from each other.


Once you have decided the correct mounting position for the winch on the deck and checked the space available below deck, proceed with the installation.

Installation procedure

To install the winch you must remove the drum and use Socket Head (SH) bolts.

Tools needed  One medium flat-bladed screwdriver

To identify the various parts, refer to the exploded view at the end of this Manual.

 Torque to apply when assembling



1. Pull out the disconnect rod n°39



2. Unscrew the central screw ($\approx 2\text{Nm}/18\text{ in-lb}$)



3. Slide off the assy socket n°30 and the cover n°29



4. Unscrew the three screws n°28 ($\approx 4\text{Nm}/35\text{ in-lb}$)



5. Remove the self-tailing arm n°27 by rotating and lifting it.



6. Lift off the drum n°24

Install the winch on the deck in the position you have chosen, keeping in mind the limits described on page 4 and using socket head (SH) bolts.

Follow steps below only to install the winch using hexagonal headed bolts



7. Remove the stripper arm housing n°21



8. Slide out the assy clutch n°37



9. Slide out the central shaft n°19



10. Unscrew the 6 hex screws n°17
($\approx 20\text{Nm}/177\text{ in-lb}$)



11. Remove the drum support n°16

Install the winch on the deck in the position you have chosen, keeping in mind the limits described on page 4 and using hexagonal headed M8 bolts.

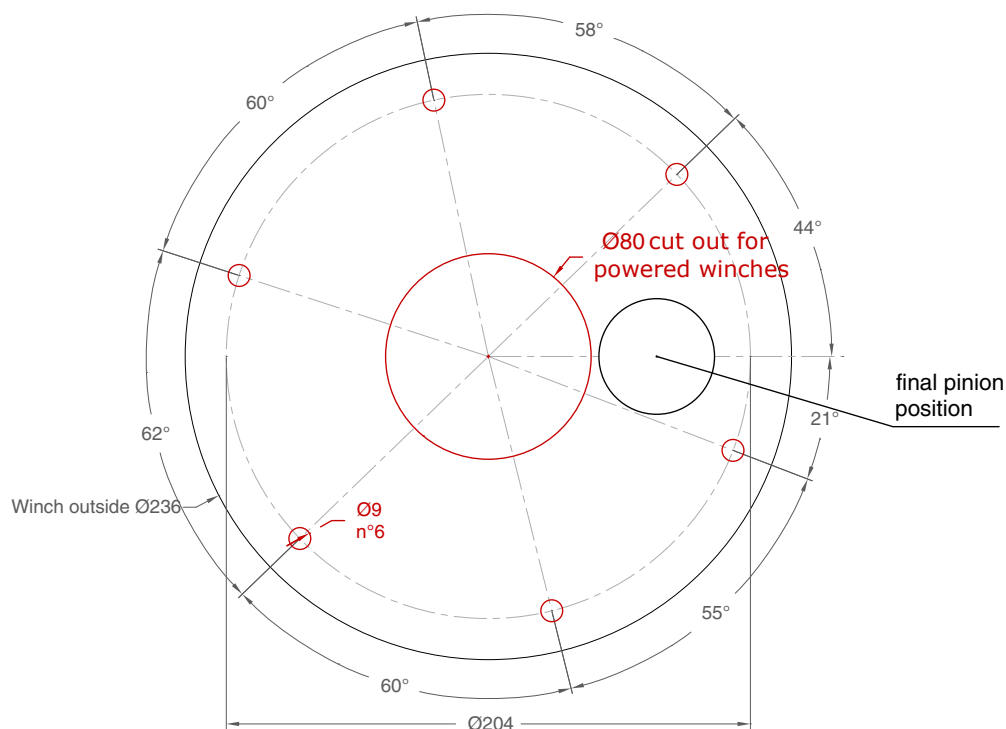
Winch installation procedure

Carry out Installation procedure then install the winch on the deck in the chosen position

A. Position the base of the winch on the deck and mark the position of the holes or use the drilling cut-out template at the point where you have decided to place the winch.

Below is a reduced scale diagram.

The drilling cut out template is available on the Harken® website, www.harken.com



B. Remove the winch and drill the six 8.5 mm and a 80 mm diameter holes.

C. Bolt the base of the winch to the deck using six M8 bolts (not supplied by Harken®) correctly chosen for the thickness and type of the boat deck. Consult the yard that built the boat in case of doubt.



WARNING!

To install the winch on the deck, use only bolts in A4 stainless steel (DIN 267 part 11). Bolts made of other materials may not have sufficient strength or may corrode which can result in winch pulling off deck suddenly and unexpectedly during high loads causing severe injury or death.

NOTICE

To mount winches on the deck, do not use countersunk bolts.

D. Fill the mounting holes with a suitable marine sealant.

E. Remove the excess adhesive/sealant from the holes and base drainage channels

F. Reassemble the winch following the steps in Installation procedure (page 7) in the reverse order, and apply the products indicated in the section on maintenance.

NOTICE

Before closing the winch, make sure the holes and drainage channels in the base of the winch are not obstructed.

Positioning the self-tailing arm

Position the self-tailing arm so that the line leaving the winch is led into the cockpit.

Motor installation procedure







WARNING!

Make sure that the power is switched off before installing or carrying out maintenance on the winch.

Once you have installed the winch on the deck, proceed with motor installation. The motor can be coupled to the winch in different positions. Check the space available below deck and choose the suitable position.

Tools needed:

-  A number five hex key
-  A number six hex key (only for vertical electric motor)
-  A number ten hex key (only for hydraulic motor)
-  Two number thirteen wrenches



1. Position the flange (see Page 12)



2. Tighten six M6 precote coated screws (8 Nm/ 71 in-lb)



3. Position the reduction gear and motor



4. Tighten the two screws (8 Nm/ 71 in-lb). Be sure to align the flange.

NOTICE

Before positioning the flange, check to make sure that seals (the first one is above the flange and the second one is under the flange) are seated correctly.



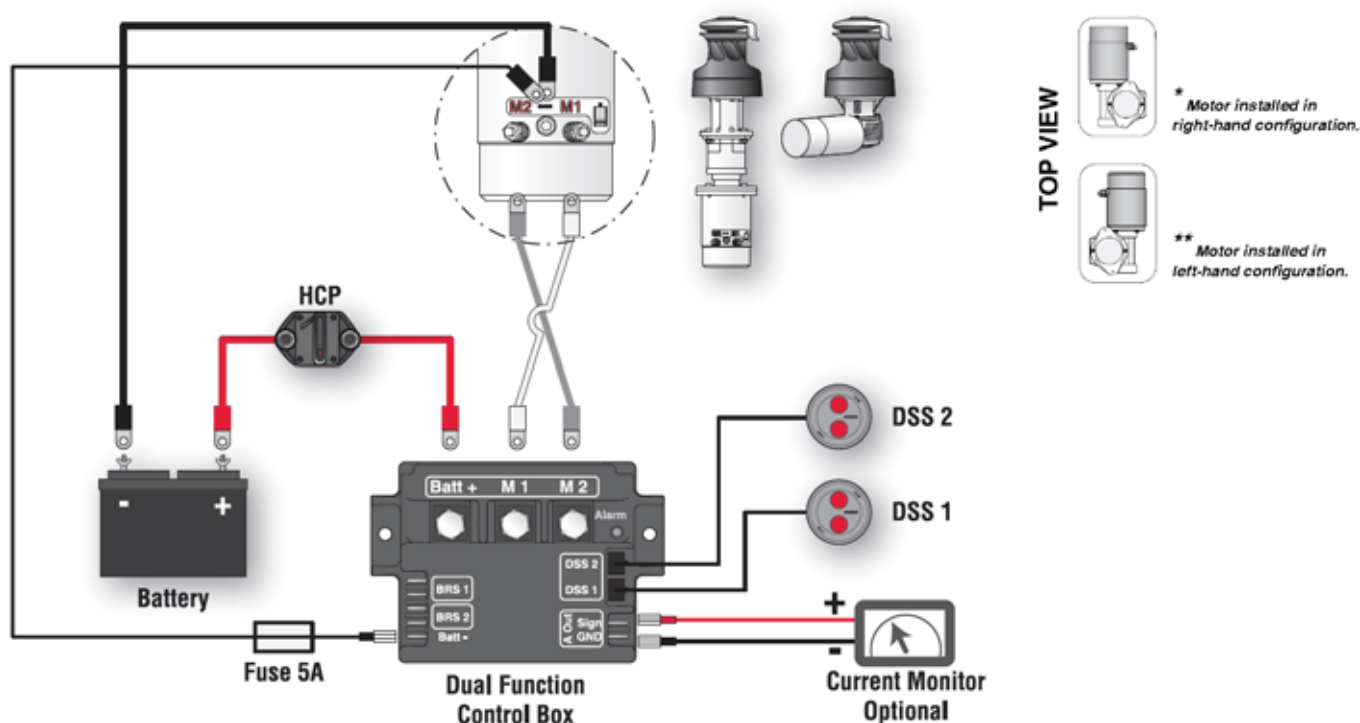
After winch is assembled and before sailing, test the powered winch functioning: insert the lock-in winch handle in the handle socket and check that the disconnect rod must disconnect gearbox.

Electric wiring diagrams

To guarantee greater efficiency in terms of safety and long life, for every winch model is mandatory to install the Dual Function Control Box.

For more information, refer to the Dual Function Control Box manual.

Refer to the following diagrams for the electric wiring:



WARNING!

Read the Dual Function Control Box manual carefully before installing and using the device.

NOTICE

For other installations, refer to the Dual Function Control Box manual.

Fasten the Dual Function Control Box containing solenoids to bulkhead or wall: refer to the Dual Function Control Box manual. Install remote circuit breaker between power supply and Dual Function Control Box. Locate push-buttons on deck in a convenient spot for easy winch operation: refer to the Digital System Switch manual.

Refer to the following chart for wire size:

Total distance between winch and battery

| Winch size | Current voltage | Under 16.4 ft AWG | Under 5 m mm ² | 16.4 - 32.8 ft AWG | 5 m - 10 m mm ² | 32.8 - 49.2 ft AWG | 10 m - 15 m mm ² | 49.2 - 65.6 ft AGW | 15m - 20 m mm ² |
|------------|-----------------|----------------------|------------------------------|-----------------------|-------------------------------|-----------------------|--------------------------------|-----------------------|-------------------------------|
| 60.3 | 12 V | 2 | 32 | 0 | 50 | 00 | 70 | 000 | 95 |
| 60.3 | 24 V | 5 | 16 | 3 | 25 | 2 | 35 | 0 | 50 |

NOTICE

To connect motor, attach cable terminals to clamps between nut and lock nut. Hold nut in contact with motor using a spanner and tighten other nut with second spanner. Take special care not to turn the central spindles. Be careful not to turn central spindles. These instructions apply when assembling and disassembling. We recommend using a torque wrench so as to obtain a torque equal to and no greater than 10 Nm (88 in-lb).



NOTICE

Note that correct electrical contact sequence is: Nut – Cable Terminal – Self-Locking Washer – Lock Nut



Hydraulic connections diagram

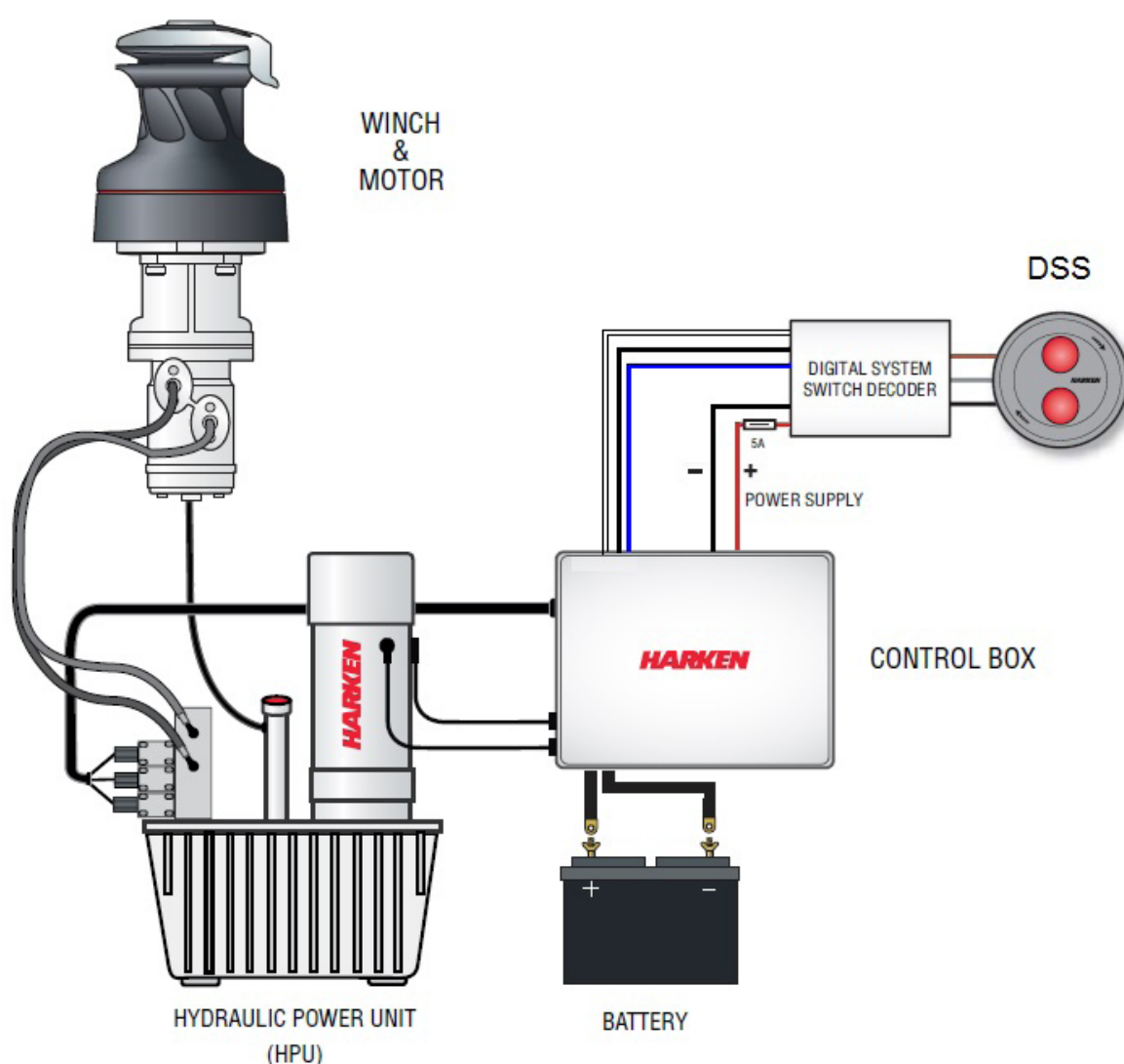
The hydraulic motor must be connected to a hydraulic system using two high-pressure tubes which serve for input or output according to the direction in which the motor will be run. The motor also needs a third connection with a low pressure tube for drainage, so that excess oil can return to the main tank to avoid shortening the life of the motor. This motor uses an open centre valve.

Refer to the following chart for the hydraulic system:

For the hydraulic motor:

Input/output pipe thread: G 1/2 – depth 15 mm

Drainage pipe thread: G 1/4 – depth 12 mm



WARNING!

Refer to the Hydraulic Power Unit and Control Box manual.



WARNING!

Refer to the Digital System Switch manual.

Maintenance

Washing

Winches must be washed frequently with fresh water, and in any case after each use.

Do not allow teak cleaning products or other cleaners containing caustic solutions to come into contact with winches and especially anodised, chrome plated or plastic parts.

Do not use solvents, polishes or abrasive pastes on the logos or stickers on the winches. Do not use polishes or abrasive pastes on anodised, chromed plated or plastics surfaces.

Make sure that the holes and drainage channels in the base of the winch are not obstructed so that water does not collect.

Maintenance table

Winches must be visually inspected at the beginning and end of every season of sailing or racing. In addition they must be completely overhauled, cleaned and lubricated at least every 12 months. After an inspection, replace worn or damaged components. Do not replace or modify any part of the winch with a part that is not original.



WARNING!

Periodic maintenance must be carried out regularly. Lack of adequate maintenance shortens the life of the winch, can cause serious injury and also invalidate the winch warranty. Installation and maintenance of winches must be carried out exclusively by specialized personnel.

In the case of doubt contact Harken® Tech Service at techservice@harken.it

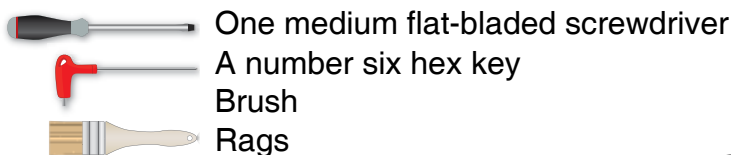


WARNING!

Make sure that the power is switched off before installing or carrying out maintenance on the winch.

Disassembly procedure

Tools needed:



To identify the various parts refer to the exploded view at the end of this Manual.

 Torque to be applied in assembly phase

Carry out **Installation procedure** (page 7) as shown in the paragraph on winch installation and then do the following:



7. Remove the stripper arm housing n°21



8. Slide out the assy clutch n°37



9. Slide out the central shaft n°19



10. Unscrew the 6 hex screws n°17
($\approx 20\text{Nm}/177\text{ in-lb}$)



11. Slide out the drum support n°16



12. Remove the gear n°31, pawls carrier n°33, the bearings n°34 and 36 and the spring n°35



13. Remove the gear n°6, pawls carrier n°3 and the washer n°7

Important: washer n°7 may remain inside the drum support!



14. Remove the idler and pinion n°14



15. Remove the pawl carrier n°11



16. Remove gear n°10



17. Remove the gear n°2



18. Remove the roller bearing n°12



18. Remove roller bearings n°15

If it is necessary to replace any jaws of the winch, proceed as follows:



I. Unscrew the 4 screws n°26
($\approx 4\text{Nm}/35\text{ in-lb}$)



II. Remove the jaws n°23

Inspect balls inside the drum and carefully check the correct position; if it is necessary to put back any balls, push balls in the race (as shown below):



Once the winch is completely disassembled, clean the parts: use a basin of diesel oil to soak metal components and rinse plastic parts in fresh water. Once you have done this, dry the parts with cloths that do not leave residue.

Inspect gears, bearings, pins and pawls for any signs of wear or corrosion.

Carefully check the teeth of gears and ring gears to make sure there are no traces of wear.

Check the roller bearings and check there are no breaks in the bearing cages.

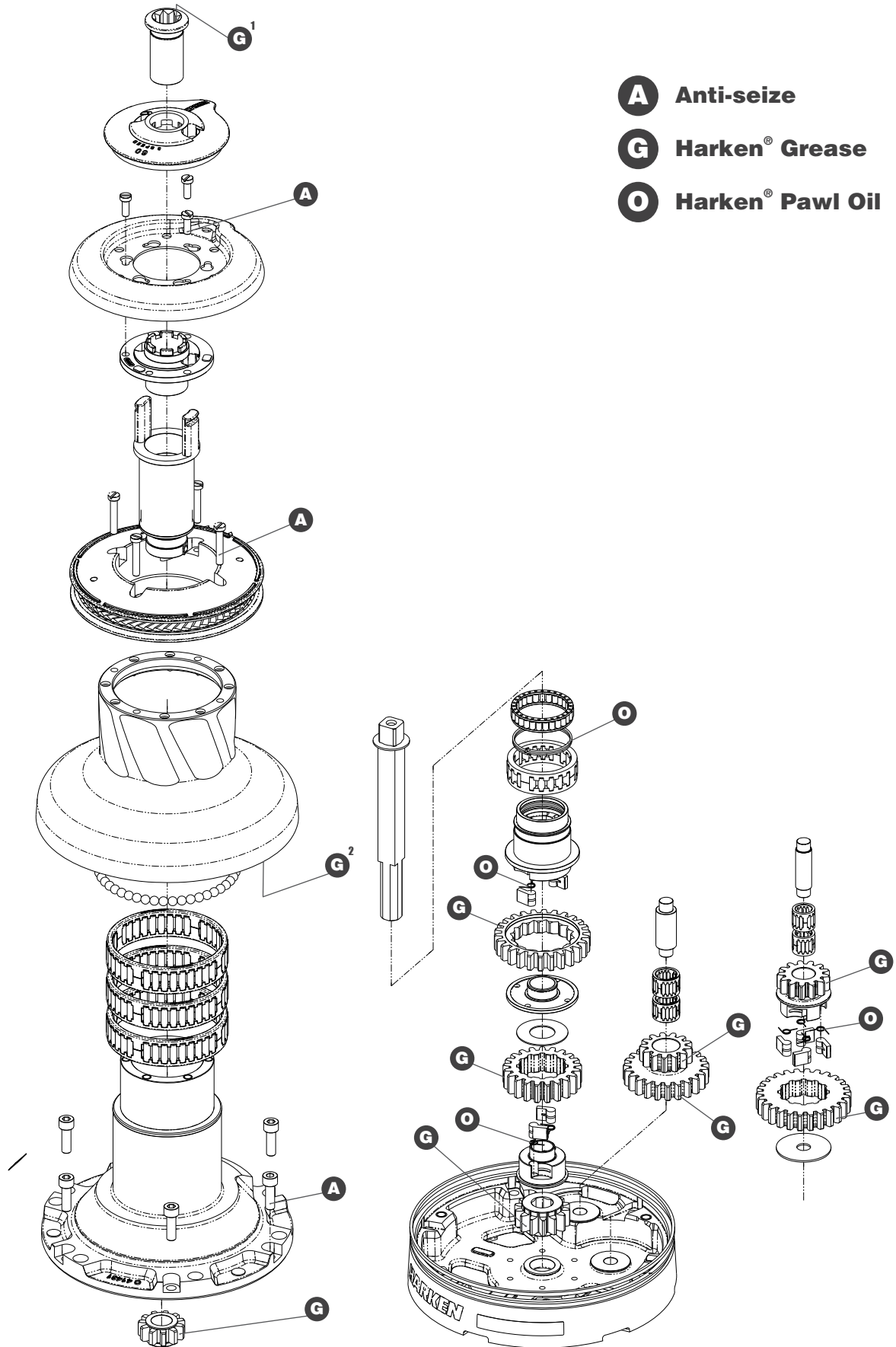
Replace worn or damaged components.

Carry out maintenance on components using the products listed below.

For more information on which products to use where, refer to the exploded diagram below.

Use a brush to lightly lubricate all gears, gear pins, teeth and all moving parts with grease.

Lightly lubricate the pawls and springs with oil. Do not use grease on the pawls!

Exploded view with maintenance products

1. Apply Harken® grease on assy socket screw - 2. Apply Harken® grease on drum gear

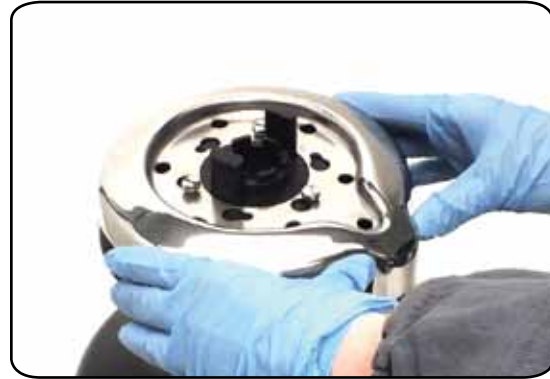
Assembly

Make sure that the holes and drainage channels in the base of the winch are not obstructed. Assemble the winch in the reverse order of the sequence in the section on disassembly.

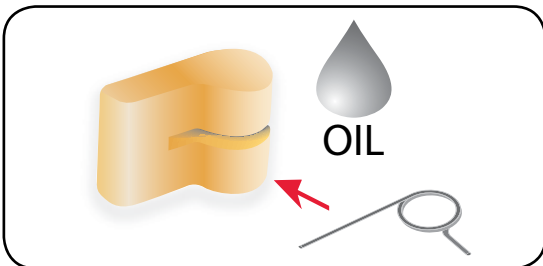
To tighten bolts, use the torque indicated in the disassembly procedure.



The icon ▲ on the Stripper Arm Housing indicates the Stripper Arm final position. Change the Stripper Arm Housing angle to modify the Stripper Arm final position.

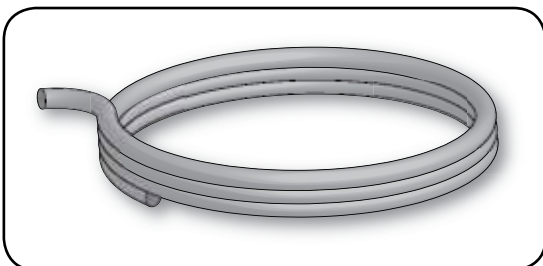


When positioning the stripper arm, align the peeler with it. If the jaws have been disassembled, insert peeler between the two jaws, taking care that the letters TOP on the peeler are facing upwards.



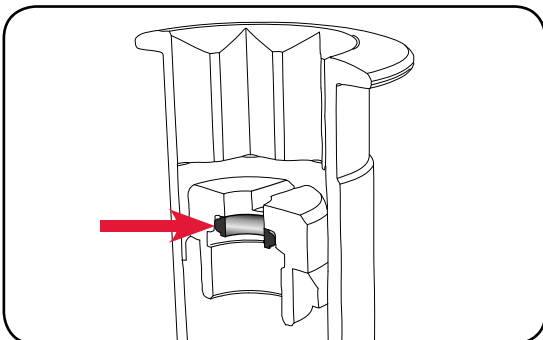
To assemble the pawls

Correctly position the spring in its housing as shown at left. Hold the spring closed and slide the pawl into its housing. Once in position, check that the pawls can be easily opened and closed with a finger.



To assemble the clutch pin

Mount the spring with the pin pointing upwards so that it is wound in an anti-clockwise direction starting from the pin.



NOTICE

Before screw the central screw, check the correct position of the o-ring in the assy socket and apply Harken® grease.

In case of doubt concerning the assembly procedure contact Harken® Tech Service: techservice@harken.it

Harken® limited worldwide warranty

Refer to the Harken® Limited Worldwide Warranty in the Harken® Catalogue and on the website www.harken.com

Ordering spare parts

Spare parts can be requested from Harken® as described in the Harken® Limited Worldwide Warranty, indicating the part number in the Parts List and including the serial number of the winch for which the parts are required.

The serial number of the winch is printed on a plate on the drum support of the winch.

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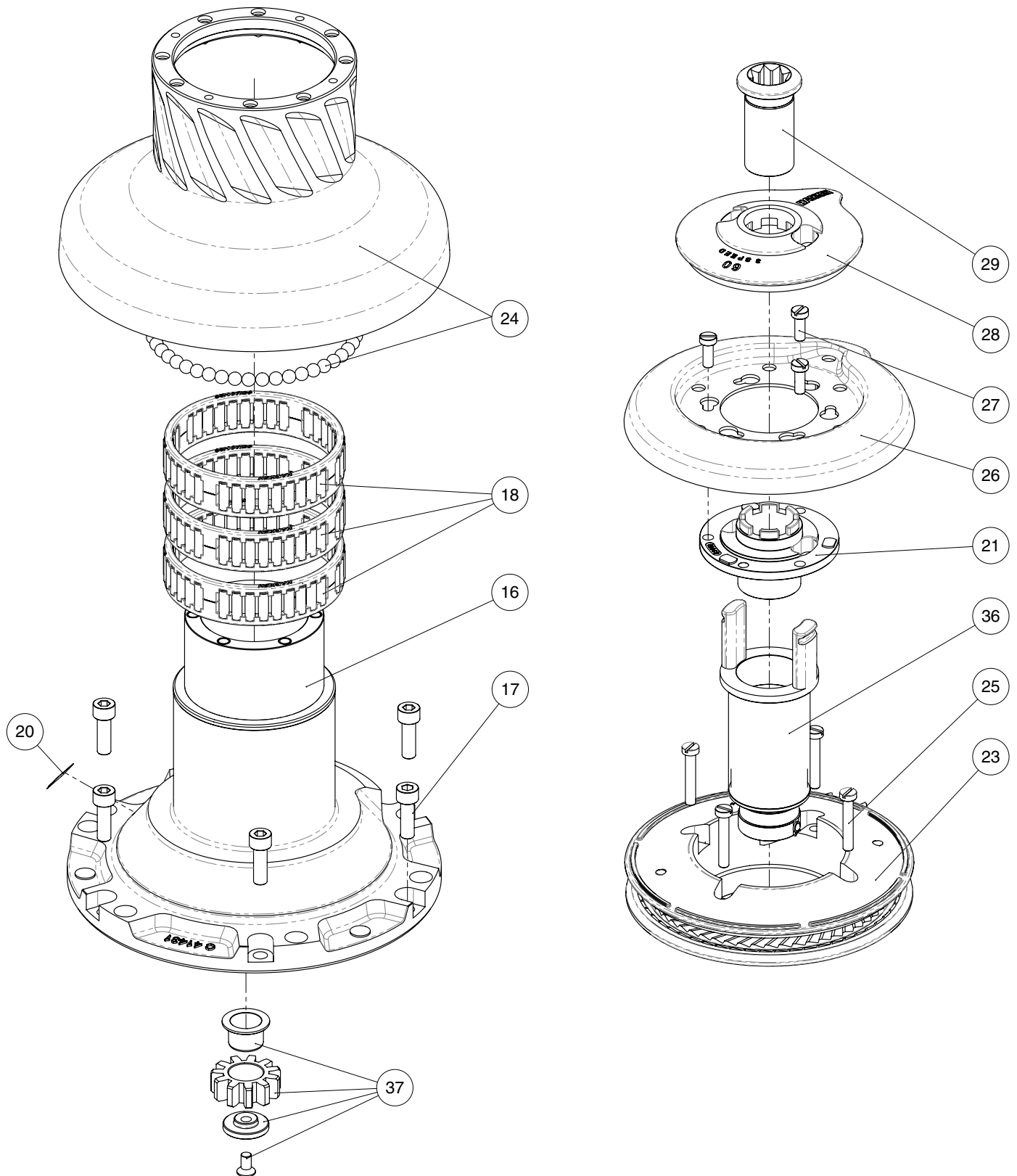
Headquarters***Harken®, Inc.***

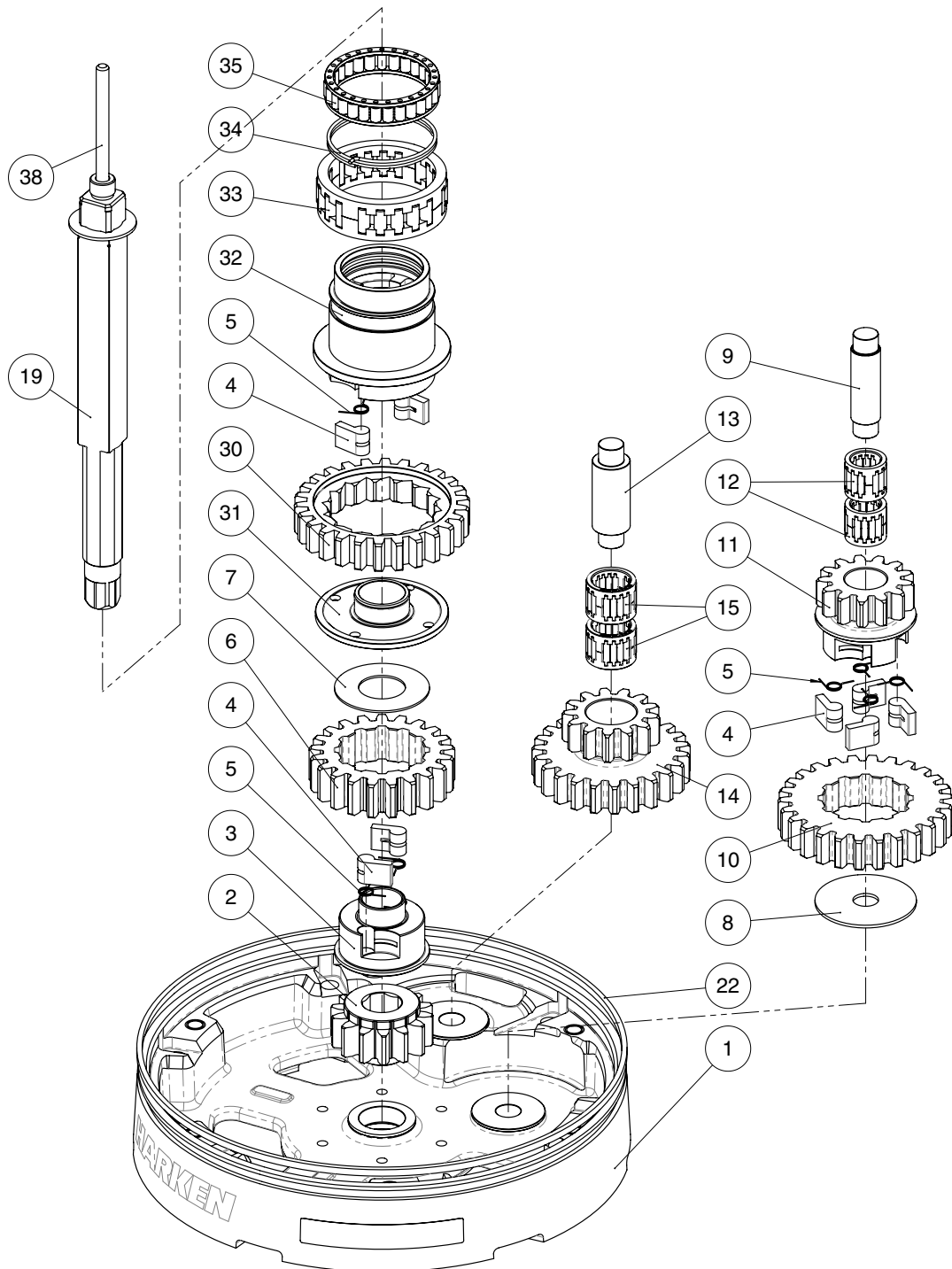
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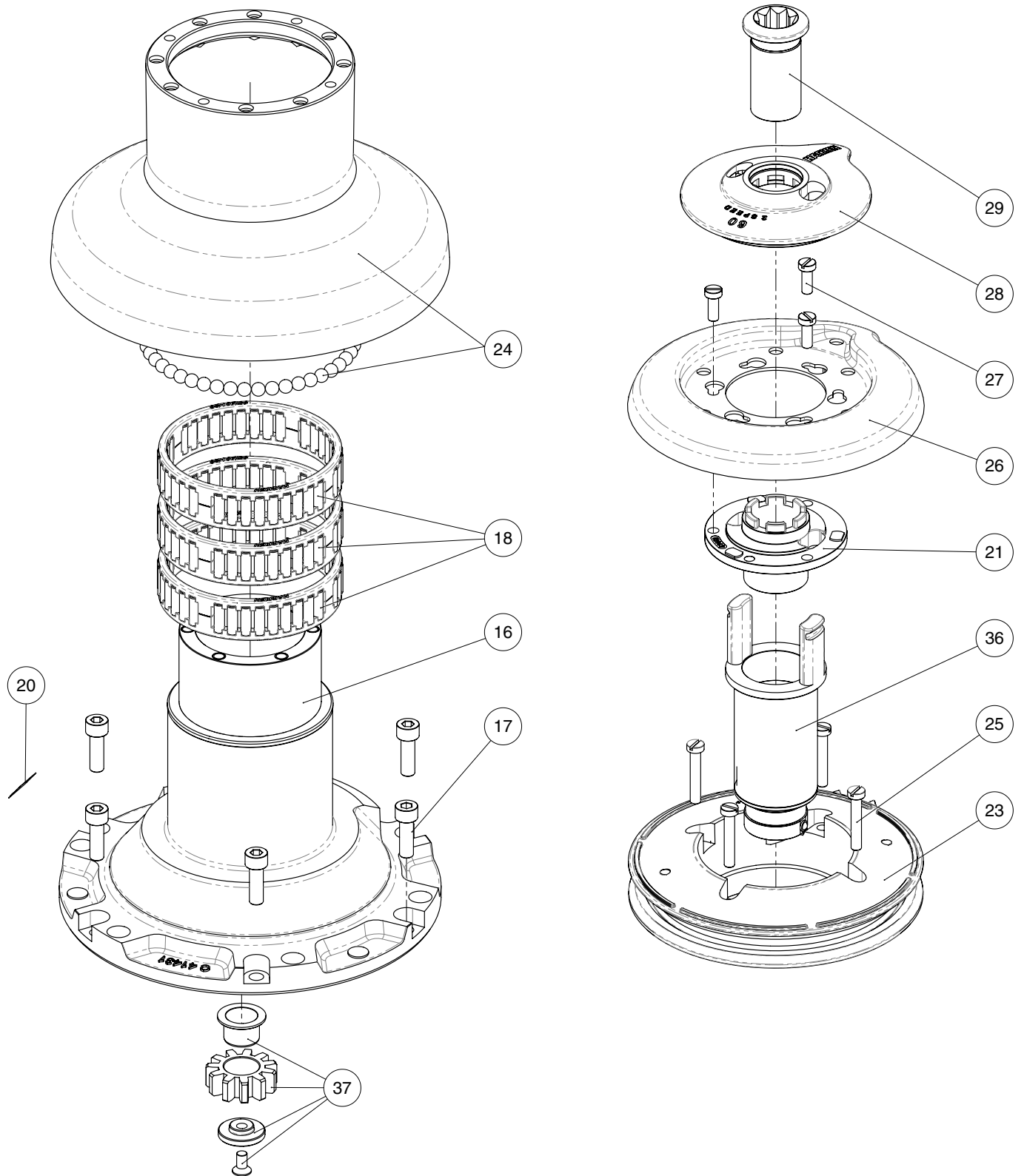
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- **Customer Service**
Tel: (262) 691-3320
Email: customerservice@harken.com

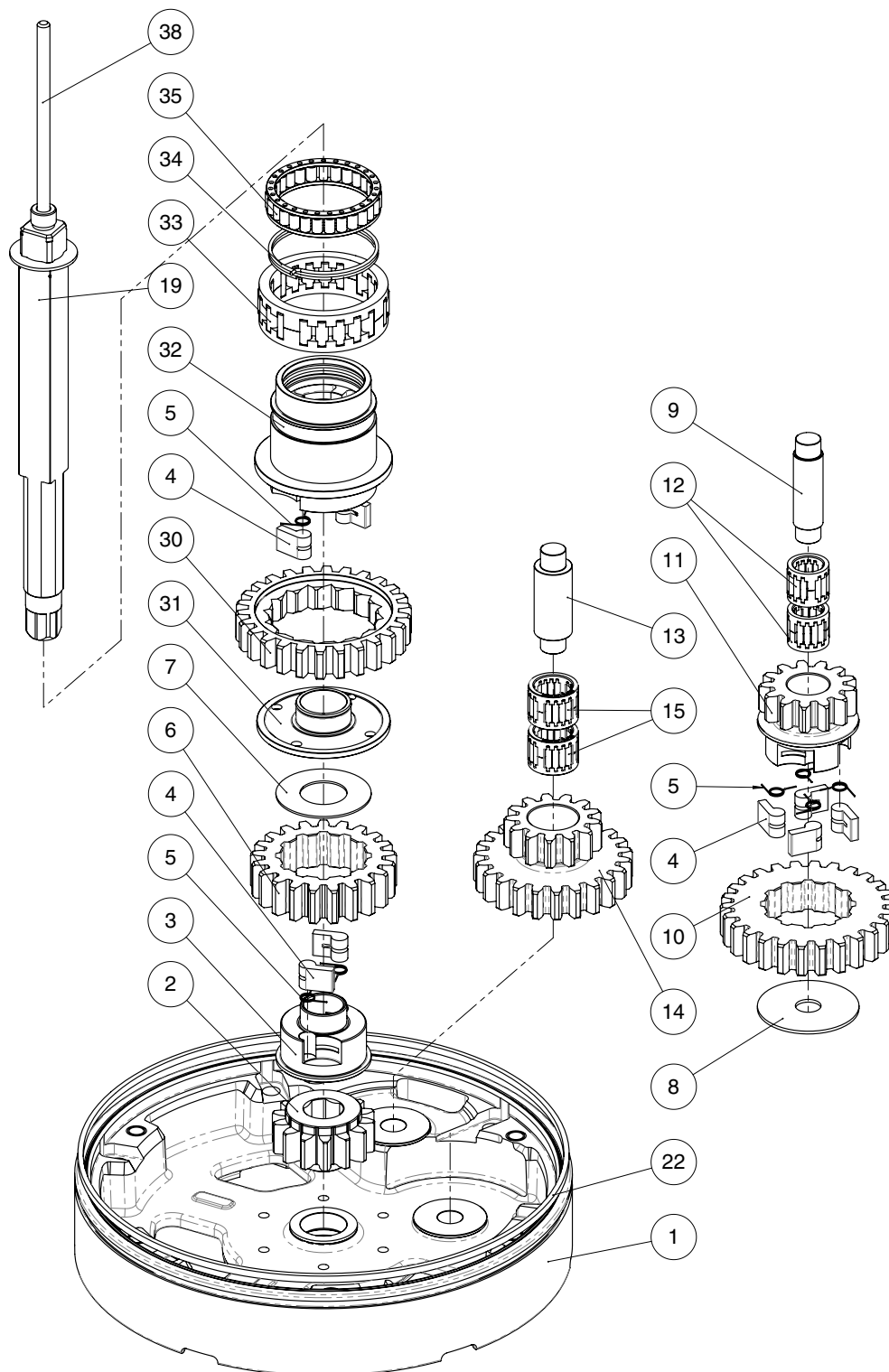
Exploded view

Radial Winch 60.3 STA, STC, STCW



Radial Winch 60.3 STA, STC, STCW

Radial Winch 60.3 STBBB, STCCC

Radial Winch 60.3 STBBB, STCCC

Parts List

Radial Winch 60.3 STA

A = drum in anodised aluminium

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|------------|--|------|------------|------------|---|
| 1 | 1 | A94189900 | Assy Base W60 EL/HY Base W60 Heli-coil M8x10 | 21 | 1 | S4155700A0 | Stripper arm support |
| | 1 | S476030004 | Centering bushing Ø12 | 22 | 1 | S281700097 | Red line |
| | 1 | S4130900A7 | Bushing Ø22xØ25x8.5 | 23 | 1 | A94143500 | Assy Jaws Winch 60 Lower Jaw W60 Upper Jaw W60 Peeler W60 - 70 SPRING |
| | 2 | S415580085 | Bushing Ø12xØ35x9 Winch Product Sticker** | | 1 | S414850080 | |
| 2 | 1 | S414400004 | Gear Z14 W60 | 4 | S385970001 | | |
| 3 | 1 | S413030004 | Pawls Carrier Ø8xN2 | 24 | 1 | A96965900 | Drum spare kit Winch 60 |
| 4 | 8 | S000090004 | Pawl Ø8* | | | | Drum assembly Winch 60 |
| 5 | 8 | S000380001 | Pawl Spring Ø8* | | 47 | M0610280 | Ball 5/16" |
| 6 | 1 | S414390041 | Ratchet Gear Z21xN2 | 25 | 4 | M0601803 | Screw UNI EN ISO 1207 - M6x35 - A4 |
| 7 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 26 | 1 | S414460019 | Stripper arm Winch 60 |
| 8 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | 27 | 3 | M0601903 | Screw M6x16 UNI1207 |
| 9 | 1 | S281010004 | Pin for gear | 28 | 1 | S4167500B1 | Cover 3 Speed W60 |
| 10 | 1 | S414420041 | Ratchet Gear Z26xN4 | 29 | 1 | A94191400 | Assy Socket Handle Winch 3speed EL/HY Socket Handle 3 speed Washer Ø25xØ15x4 Nut Screw for Disconnect Rod O ring RC 2025 series |
| 11 | 1 | S414410004 | Pawls Carrier Gear Z13 N4 | 1 | S414940085 | | |
| 12 | 2 | A72821800 | Roller Bearing Ø14xØ20x18 | 1 | S414930003 | | |
| 13 | 1 | S416030004 | Gear Pin Ø12xØ18x52,5 | 1 | M0679797 | | |
| 14 | 1 | S414480004 | Idler and Pinion Z23/Z13 W60 | 30 | 1 | S280870041 | Gear 1V |
| 15 | 2 | A74162300 | Roll bearing Ø24xØ18x18 | 31 | 1 | S414580081 | Shim Bushing 3 speed |
| 16 | 1 | A94190800 | Assy Housing Winch 60.3 Housing W60 Heli-coil M6x9 | 32 | 1 | S415400004 | Pawls Carrier 3 speed |
| | 2 | S415580085 | Bushing Ø12xØ35x9 | 33 | 1 | A73129200 | ROLLER BEARING 50-62-20 |
| | 1 | S415810081 | Bushing | 34 | 1 | S377510001 | Clutch Spring |
| 17 | 6 | M0606303 | Screw M8x25 UNI 5931 | 35 | 1 | A73422600 | Bearing Ø45xØ55x12 |
| 18 | 3 | A74145000 | Roller Bearing Ø95xØ107x26 | 36 | 1 | A94158000 | Assy Clutch 3rd speed W60 Assy Command tube W60 Dog Clutch 3 speed Spring loaded ball plunger Ø6 |
| 19 | 1 | A96753600 | Assy Central Shaft Winch 60 EL/HY Central Shaft Pred. W60 | 1 | S415420004 | | |
| | 1 | S413880002 | Washer Ø17.2xØ32x1.5 | 2 | M6009463 | | |
| 20 | | | Winch Serial Number Sticker | 37 | 1 | A94145300 | Assy Gear 3rd speed Idler Gear 3 speed Bushing Ø22/Ø25x15.5 Washer 3 speed Screw M6x12 UNI 5933 |
| | | | | 1 | S414530004 | | |
| | | | | 1 | S414550081 | | |
| | | | | 1 | S414540080 | | |
| | | | | 1 | M0604003 | | |
| | | | | 38 | 1 | S419020002 | Disconnect rod W60.3 |

*Available with service kit; see website www.harken.com

**Winch product sticker



Radial Winch 60.3 STC

C = drum in chrome bronze

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|------------|--|------|------|------------|--|
| 1 | 1 | A94189900 | Assy Base W60 EL/HY Base W60 Heli-coil M8x10 | 21 | 1 | S4155700A0 | Stripper arm support |
| | 1 | S476030004 | Centering bushing Ø12 | 22 | 1 | S281700097 | Red line |
| | 1 | S4130900A7 | Bushing Ø22xØ25x8.5 | 23 | 1 | A94143500 | Assy Jaws Winch 60 Lower Jaw W60 Upper Jaw W60 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 Winch Product Sticker** | | 1 | S414850080 | Peeler W60 - 70 |
| 2 | 1 | S414400004 | Gear Z14 W60 | | 4 | S385970001 | SPRING |
| 3 | 1 | S413030004 | Pawls Carrier Ø8xN2 | 24 | 1 | A94143400 | Drum spare kit Winch 60 Drum assembly Winch 60 C |
| 4 | 8 | S000090004 | Pawl Ø8* | | 47 | M0610280 | Ball 5/16" |
| 5 | 8 | S000380001 | Pawl Spring Ø8* | 25 | 4 | M0601803 | Screw UNI EN ISO 1207 - M6x35 - A4 |
| 6 | 1 | S414390041 | Ratchet Gear Z21xN2 | 26 | 1 | S414460019 | Stripper arm Winch 60 |
| 7 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 27 | 3 | M0601903 | Screw M6x16 UNI1207 |
| 8 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | 28 | 1 | S4167500B1 | Cover 3 Speed W60 |
| 9 | 1 | S281010004 | Pin for gear | 29 | 1 | A94191400 | Assy Socket Handle Winch 3speed EL/HY Socket Handle 3 speed Washer Ø25xØ15x4 Nut Screw for Disconnect Rod O ring RC 2025 series |
| 10 | 1 | S414420041 | Ratchet Gear Z26xN4 | | 1 | S414940085 | |
| 11 | 1 | S414410004 | Pawls Carrier Gear Z13 N4 | | 1 | S414930003 | |
| 12 | 2 | A72821800 | Roller Bearing Ø14xØ20x18 | | 1 | M0679797 | |
| 13 | 1 | S416030004 | Gear Pin Ø12xØ18x52,5 | 30 | 1 | S280870041 | Gear 1V |
| 14 | 1 | S414480004 | Idler and Pinion Z23/Z13 W60 | 31 | 1 | S414580081 | Shim Bushing 3 speed |
| 15 | 2 | A74162300 | Roll bearing Ø24xØ18x18 | 32 | 1 | S415400004 | Pawls Carrier 3 speed |
| 16 | 1 | A94190800 | Assy Housing Winch 60.3 Housing W60 Heli-coil M6x9 | 33 | 1 | A73129200 | ROLLER BEARING 50-62-20 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 | 34 | 1 | S377510001 | Clutch Spring |
| | 1 | S415810081 | Bushing | 35 | 1 | A73422600 | Bearing Ø45xØ55x12 |
| 17 | 6 | M0606303 | Screw M8x25 UNI 5931 | 36 | 1 | A94158000 | Assy Clutch 3rd speed W60 Assy Command tube W60 Dog Clutch 3 speed Spring loaded ball plunger Ø6 |
| 18 | 3 | A74145000 | Roller Bearing Ø95xØ107x26 | | 1 | S415420004 | |
| 19 | 1 | A96753600 | Assy Central Shaft Winch 60 EL/HY Central Shaft Pred. W60 Washer Ø17.2xØ32x1.5 | | 2 | M6009463 | |
| | 1 | S413880002 | Winch Serial Number Sticker | 37 | 1 | A94145300 | Assy Gear 3rd speed Idler Gear 3 speed Bushing Ø22/Ø25x15.5 Washer 3 speed Screw M6x12 UNI 5933 |
| 20 | | | Winch Serial Number Sticker | | 1 | S414530004 | |
| | | | | | 1 | S414550081 | |
| | | | | | 1 | S414540080 | |
| | | | | | 1 | M0604003 | |
| | | | | 38 | 1 | S419020002 | Disconnect rod W60.3 |

*Available with service kit; see website www.harken.com

**Winch product sticker



Radial Winch 60.3 STCW

CW = chrome/white

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|-------------|--|------|------|-------------|---|
| 1 | 1 | A96726100W | Base Assy W60 STC W EL/HY <i>Base W60 Heli-coil M8x10</i> | 22 | - | - | - |
| | 1 | S6616600A5W | <i>Skirt W60 RAL9003</i> | 23 | 1 | A94143500W | Assy Jaws Winch 60 RAL 9003 <i>Lower Jaw W60 RAL9003 Upper Jaw W60 RAL9003</i> |
| | 1 | S476030004 | <i>Centering bushing Ø12</i> | | 1 | S414850080W | <i>Peeler W60 - 70 RAL9003</i> |
| | 1 | S4130900A7 | <i>Bushing Ø22xØ25x8.5</i> | 4 | 4 | S385970001 | <i>SPRING</i> |
| | 2 | S415580085 | <i>Bushing Ø12xØ35x9 Winch Product Sticker**</i> | 24 | 1 | A94143400 | Drum spare kit Winch 60 Drum assembly Winch 60 C |
| 2 | 1 | S414400004 | Gear Z14 W60 | | 47 | M0610280 | Ball 5/16" |
| 3 | 1 | S413030004 | Pawls Carrier Ø8xN2 | 25 | 4 | M0601803 | Screw UNI EN ISO 1207 - M6x35 - A4 |
| 4 | 8 | S000090004 | Pawl Ø8* | 26 | 1 | S414460019 | Stripper arm Winch 60 |
| 5 | 8 | S000380001 | Pawl Spring Ø8* | 27 | 3 | M0601903 | Screw M6x16 UNI1207 |
| 6 | 1 | S414390041 | Ratchet Gear Z21xN2 | 28 | 1 | S4167500B1W | Cover 3 Speed W60 RAL9003 |
| 7 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 29 | 1 | A94154700 | Assy Socket 3speed <i>Socket Handle 3 speed</i> |
| 8 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | | 1 | S415130085 | <i>Washer Ø7.7xØ25x5.8</i> |
| 9 | 1 | S281010004 | Pin for gear | | 1 | M0614303 | <i>Screw M8x20 UNI 6109</i> |
| 10 | 1 | S414420041 | Ratchet Gear Z26xN4 | 30 | 1 | S280870041 | Gear 1V |
| 11 | 1 | S414410004 | Pawls Carrier Gear Z13 N4 | 31 | 1 | S414580081 | Shim Bushing 3 speed |
| 12 | 2 | A72821800 | Roller Bearing Ø14xØ20x18 | 32 | 1 | S415400004 | Pawls Carrier 3 speed |
| 13 | 1 | S416030004 | Gear Pin Ø12xØ18x52,5 | 33 | 1 | A73129200 | ROLLER BEARING 50-62-20 |
| 14 | 1 | S414480004 | Idler and Pinion Z23/Z13 W60 | 34 | 1 | S377510001 | Clutch Spring |
| 15 | 2 | A74162300 | Roll bearing Ø24xØ18x18 | 35 | 1 | A73422600 | Bearing Ø45xØ55x12 |
| 16 | 1 | A94190800 | Assy Housing Winch 60.3 <i>Housing W60 Heli-coil M6x9</i> | 36 | 1 | A94158000 | Assy Clutch 3rd speed W60 <i>Assy Command tube W60</i> |
| | 2 | S415580085 | <i>Bushing Ø12xØ35x9</i> | | 1 | S415420004 | <i>Dog Clutch 3 speed</i> |
| | 1 | S415810081 | <i>Bushing</i> | 2 | 2 | M6009463 | <i>Spring loaded ball plunger Ø6</i> |
| 17 | 6 | M0606303 | Screw M8x25 UNI 5931 | 37 | 1 | A94145300 | Assy Gear 3rd speed |
| 18 | 3 | A74145000 | Roller Bearing Ø95xØ107x26 | | 1 | S414530004 | <i>Idler Gear 3 speed</i> |
| 19 | 1 | A94143800 | Assy Shaft Winch 60 <i>Central shaft W60 ST</i> | | 1 | S414550081 | <i>Bushing Ø22/Ø25x15.5</i> |
| | 1 | S413880002 | <i>Washer Ø17.2xØ32x1.5</i> | | 1 | S414540080 | <i>Washer 3 Speed</i> |
| 20 | | | Winch Serial Number Sticker | | 1 | M0604003 | <i>Screw M6x12 UNI 5933</i> |
| 21 | 1 | S4155700A0 | Stripper arm support | 38 | 1 | S419020002 | Disconnect rod W60.3 |

*Available with service kit; see website www.harken.com

**Winch product sticker



Radial Winch 60.3 STBBB

BBB = all bronze

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|------------|--|------|------|------------|---|
| 1 | 1 | A96978700 | Assy base Winch 60 STBBB Base W60 Heli-coil M8x10 | 21 | 1 | S4155700A0 | Stripper arm support |
| | 1 | S690870043 | Cover for base W60 BBB | 22 | 1 | S281700097 | Red line |
| | 1 | S476030004 | Centering bushing Ø12 | 23 | 1 | A96924100 | Assy Jaws Winch 60 BBB Lower Jaw W60 BBB |
| | 1 | S4130900A7 | Bushing Ø22xØ25x8.5 | | 1 | S414850080 | Upper Jaw W60 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 Winch Product Sticker** | | 4 | S385970001 | Peeler W60 - 70 SPRING |
| 2 | 1 | S414400004 | Gear Z14 W60 | 24 | 1 | A96923900 | Spare kit drum Winch 60 |
| 3 | 1 | S413030004 | Pawls Carrier Ø8xN2 | | | | Drum assembly W60 BBB |
| 4 | 8 | S000090004 | Pawl Ø8* | | 47 | M0610280 | Ball 5/16" |
| 5 | 8 | S000380001 | Pawl Spring Ø8* | 25 | 4 | M0601803 | Screw UNI EN ISO 1207- M6x35 - A4 |
| 6 | 1 | S414390041 | Ratchet Gear Z21xN2 | 26 | 1 | S7123300F0 | Stripper arm Winch 60 BBB |
| 7 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 27 | 3 | M0601903 | Screw M6x16 UNI1207 |
| 8 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | 28 | 1 | A76907400 | Cover W60 BBB |
| 9 | 1 | S281010004 | Pin for gear | 29 | 1 | A94191400 | Assy Socket Handle Winch 3speed EL/HY |
| 10 | 1 | S414420041 | Ratchet Gear Z26xN4 | | 1 | S414940085 | Socket handle 3 speed |
| 11 | 1 | S414410004 | Pawls Carrier Gear Z13 N4 | | 1 | S414930003 | Washer Ø25xØ15x4 |
| 12 | 2 | A72821800 | Roller Bearing Ø14xØ20x18 | | 1 | M0679797 | Nut Screw for Disconnect Rod O ring RC 2025 series |
| 13 | 1 | S416030004 | Gear Pin Ø12xØ18x52,5 | 30 | 1 | S280870041 | Gear 1V |
| 14 | 1 | S414480004 | Idler and Pinion Z23/Z13 W60 | 31 | 1 | S414580081 | Shim Bushing 3 speed |
| 15 | 2 | A74162300 | Roll bearing Ø24xØ18x18 | 32 | 1 | S415400004 | Pawls Carrier 3 speed |
| 16 | 1 | A94190800 | Assy Housing Winch 60.3 Housing W60 Heli-coil M6x9 | 33 | 1 | A73129200 | ROLLER BEARING 50-62-20 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 | 34 | 1 | S377510001 | Clutch Spring |
| | 1 | S415810081 | Bushing | 35 | 1 | A73422600 | Bearing Ø45xØ55x12 |
| 17 | 6 | M0606303 | Screw M8x25 UNI 5931 | 36 | 1 | A94158000 | Assy Clutch 3rd speed W60 Assy Command tube W60 |
| 18 | 3 | A74145000 | Roller Bearing Ø95xØ107x26 | | 1 | S415420004 | Dog Clutch 3 speed |
| 19 | 1 | A96753600 | Assy Central Shaft Winch 60 EL/HY | | 2 | M6009463 | Spring loaded ball plunger Ø6 |
| | 1 | S413880002 | Central Shaft Pred. W60 Washer Ø17.2xØ32x1.5 | 37 | 1 | A94145300 | Assy Gear 3rd speed |
| 20 | | | Winch Serial Number Sticker | | 1 | S414530004 | Idler Gear 3 speed |
| | | | | | 1 | S414550081 | Bushing Ø22/Ø25x15.5 |
| | | | | | 1 | S414540080 | Washer 3 Speed |
| | | | | | 1 | M0604003 | Screw M6x12 UNI 5933 |
| | | | | | 38 | 1 | S419020002 |

*Available with service kit; see website www.harken.com

**Winch product sticker



Radial Winch 60.3 STCCC

CCC = All-Chrome bronze

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|------------|--|------|------|-------------|--|
| 1 | 1 | A96978800 | Assy base Winch 60 STCCC Base W60 Heli-coil M8x10 | 21 | 1 | S4155700A0 | Stripper arm Housing |
| | 1 | S690910043 | Cover for base W60 CCC | 22 | 1 | S281700097 | Red line |
| | 1 | S476030004 | Centering bushing Ø12 | 23 | 1 | A96812200 | Assy Jaws Winch 60 CCC Lower Jaw W60 CCC |
| | 1 | S4130900A7 | Bushing Ø22xØ25x8.5 | | 1 | S414850080W | Upper Jaw W60 RAL9003 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 Winch Product Sticker** | | 4 | S385970001 | Peeler W60 - 70 RAL9003 SPRING |
| 2 | 1 | S414400004 | Gear Z14 W60 | 24 | 1 | A94143400 | Drum spare kit Winch 60 |
| 3 | 1 | S413030004 | Pawls Carrier Ø8xN2 | | | | Drum assembly Winch 60 C |
| 4 | 8 | S000090004 | Pawl Ø8* | | 47 | M0610280 | Ball 5/16" |
| 5 | 8 | S000380001 | Pawl Spring Ø8* | 25 | 4 | M0601803 | Screw UNI EN ISO 1207- M6x35 - A4 |
| 6 | 1 | S414390041 | Ratchet Gear Z21xN2 | 26 | 1 | S414460019 | Stripper arm Winch 60 |
| 7 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 27 | 3 | M0601903 | Screw M6x16 UNI1207 |
| 8 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | 28 | 1 | A76907200 | Cover W60.3 CCC |
| 9 | 1 | S281010004 | Pin for gear | 29 | 1 | A94154700 | Assy Socket 3speed Socket Handle 3 speed |
| 10 | 1 | S414420041 | Ratchet Gear Z26xN4 | | 1 | S414940085 | Washer Ø25xØ15x4 |
| 11 | 1 | S414410004 | Pawls Carrier Gear Z13 N4 | | 1 | S414930003 | Nut Screw for Disconnect Rod |
| 12 | 2 | A72821800 | Roller Bearing Ø14xØ20x18 | | 1 | M0679797 | O ring RC 2025 series |
| 13 | 1 | S416030004 | Gear Pin Ø12xØ18x52,5 | 30 | 1 | S280870041 | Gear 1V |
| 14 | 1 | S414480004 | Idler and Pinion Z23/Z13 W60 | 31 | 1 | S414580081 | Shim Bushing 3 speed |
| 15 | 2 | A74162300 | Roll bearing Ø24xØ18x18 | 32 | 1 | S415400004 | Pawls Carrier 3 speed |
| 16 | 1 | A94190800 | Assy Housing Winch 60.3 Housing W60 Heli-coil M6x9 | 33 | 1 | A73129200 | ROLLER BEARING 50-62-20 |
| | 2 | S415580085 | Bushing Ø12xØ35x9 | 34 | 1 | S377510001 | Clutch Spring |
| | 1 | S415810081 | Bushing | 35 | 1 | A73422600 | Bearing Ø45xØ55x12 |
| 17 | 6 | M0606303 | Screw M8x25 UNI 5931 | 36 | 1 | A94158000 | Assy Clutch 3rd speed W60 Assy Command tube W60 |
| 18 | 3 | A74145000 | Roller Bearing Ø95xØ107x26 | | 1 | S415420004 | Dog Clutch 3 speed |
| 19 | 1 | A94161200 | Assy Shaft Winch 60 Central Shaft Pred. W60 | | 2 | M6009463 | Spring loaded ball plunger Ø6 |
| | 1 | S413880002 | Washer Ø17.2xØ32x1.5 | 37 | 1 | A94145300 | Assy Gear 3rd speed |
| 20 | | | Winch Serial Number Sticker | | 1 | S414530004 | Idler Gear 3 speed |
| | | | | | 1 | S414550081 | Bushing Ø22/Ø25x15.5 |
| | | | | | 1 | S414540080 | Washer 3 speed |
| | | | | | 1 | M0604003 | Screw M6x12 UNI 5933 |
| | | | | | 38 | 1 | S419020002 |

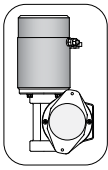
*Available with service kit; see website www.harken.com

**Winch product sticker

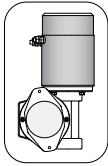


Horizontal electric motor 12V / 24V

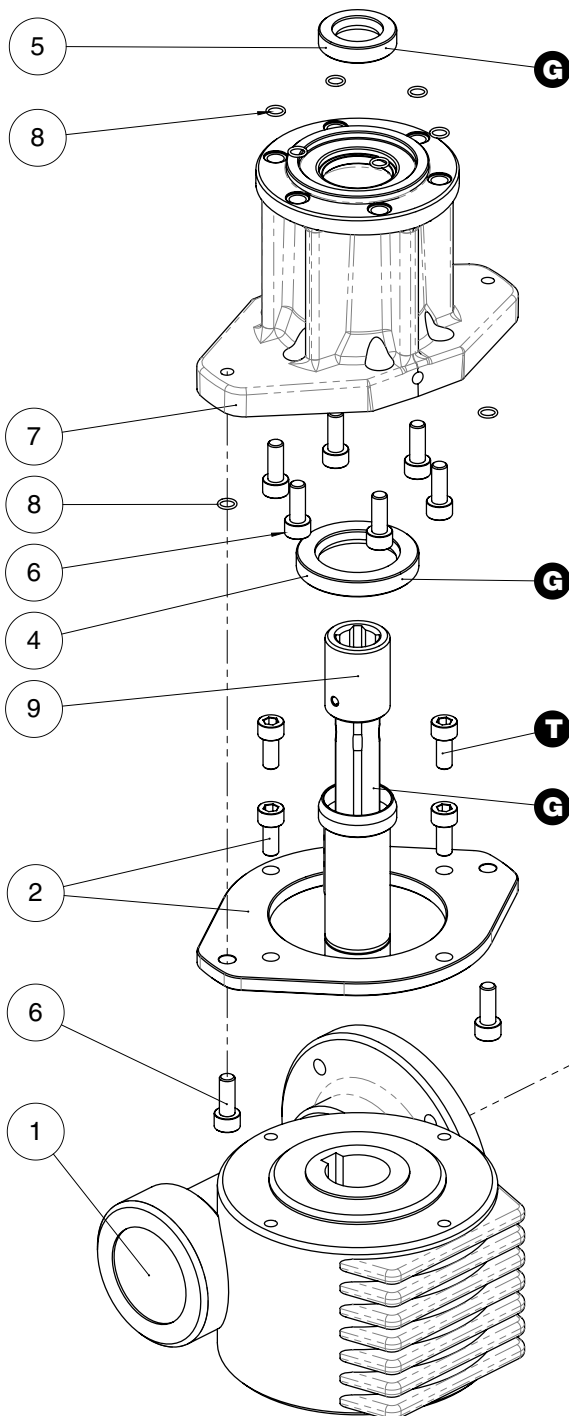
TOP VIEW



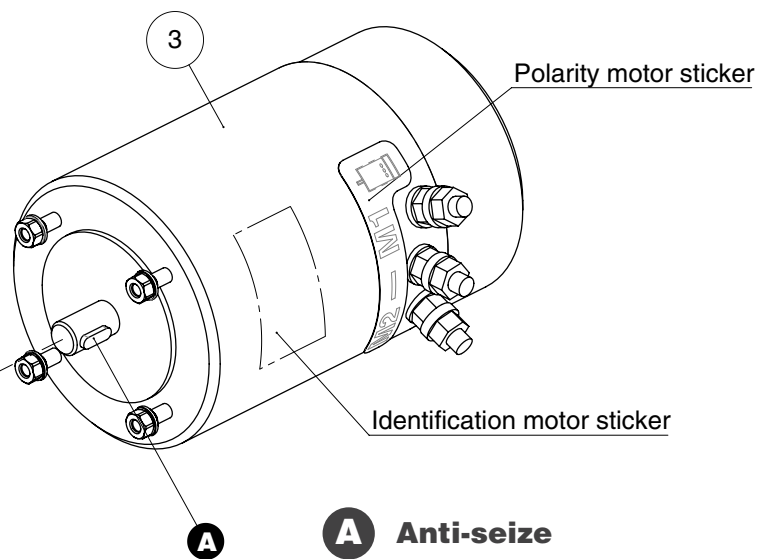
* Motor installed in right-hand configuration.



** Motor installed in left-hand configuration.



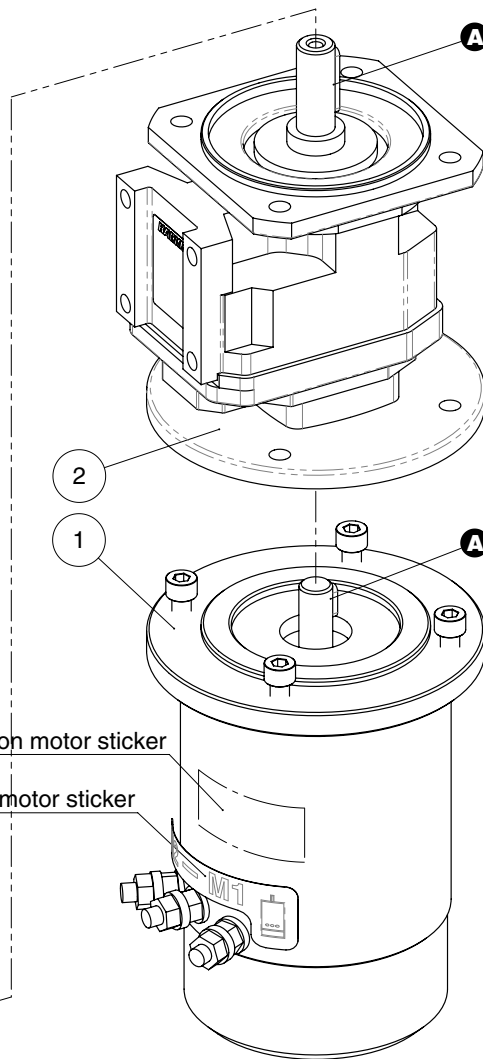
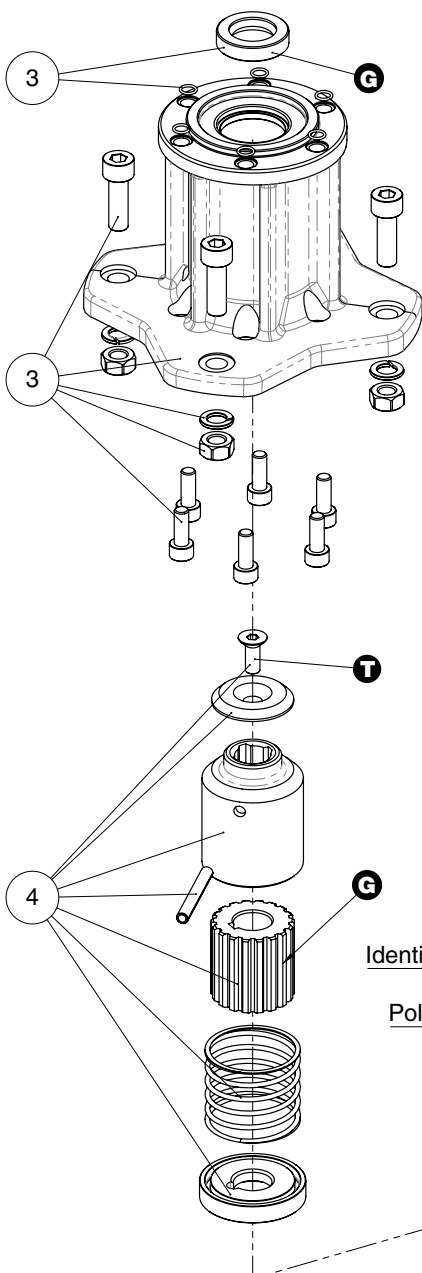
| Pos. | Q.ty | Code | Description | |
|------|------------|---------------------------|---|---|
| 1 | 1 | A93127900 | KIT Gear Reduction 1/24 | |
| | 1 | A94194900 | KIT LM Gear Reduction 1/24 | |
| 2 | 1 | A94149200 | KIT Assy Electric Motor Flange | |
| | 1 | A94149200L | KIT Assy Electric Motor Flange Left | |
| | 4 | M0606803 | Electric Motor Flange Screw M6x14 UNI 5931 | |
| | 1 | A96010700 | KIT EL Motor 12V 1,5kW | |
| 3 | 1 | A96010600 | KIT EL Motor 24V 2kW | |
| | | | Electric Motor | |
| | | | Polarity motor sticker | |
| | | | Screw stud M6x26 | |
| | | | Washer Ø6 | |
| | | | Nut M6 UNI5588 | |
| | 1 | M6014206 | Key DIN 6885 5x5x15 | |
| | 4 | 1 | M0612097 | Sealer Ø30xØ47x7 |
| | 5 | 1 | M6007297 | Lip seal Ø17xØ30x7 |
| | 6 | 8 | S415360003 | Screw M6x16 UNI EN ISO 5931:2003 precote coating |
| 7 | 1 | S496650053 | Horizontal Motorgear Flange | |
| 8 | 8 | M6015697 | O-Ring Seal ORM 0055-10 (Ø5,5 x Ø1) | |
| 9 | 1 | A96589000 | Performa KIT EL HO Motor Clutch | |
| | | | Shaft Motorgear HO | |
| | | | Performa HO Gear Motor Shaft | |
| | | | Hub GearMotor | |
| | 1 | M0601402 | Dowel UNI EN ISO 8752- Ø4x24 | |
| | 1 | M6020097 | O-ring 19.1x1.6 | |
| | 1 | S418620001 | Disconnect spring | |
| 1 | S414050080 | Flange GearMotor Shaft HO | | |
| 1 | M6010303 | Key 8x5x40 UNI 7511 | | |



- A** Anti-seize
- G** Harken® Grease
- T** Axial Threadlocker

Vertical electric motor 12V / 24V

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|-----------|------------------------------------|------|------------|---|----------------------------------|
| 1 | 1 | A96010500 | KIT EL Motor 12V 1,5kW VT | 3 | 1 | A94150500 | KIT EL VT Motor Flange |
| | 1 | A96010400 | KIT EL Motor 24V 2kW VT | | 4 | M0602903 | NUT M8 - UNI 5588 - A4 |
| | | | <i>Electric Motor</i> | | 4 | M0603103 | WASHER 8.4 U1751 DIN127 A4 |
| | | | <i>Polarity motor sticker</i> | | 1 | M6007297 | Lip seal Ø17xØ30x7 |
| | 1 | M6014206 | Key DIN 6885 5x5x15 | 6 | M6015697 | O-Ring Seal ORM 0055-10 (Ø5,5x Ø1) | |
| 2 | 1 | A96562900 | Vertical reduction gear box 1/21.3 | 6 | S415360003 | Screw M6x16 UNI EN ISO 931:2003 precote coating | |
| | | | | 4 | M0606303 | Screw M8x25 UNI 5931 | |
| | | | | 4 | 1 | A94193700 | KIT EL VT Motor Clutch |
| | | | | | | | <i>Connecting Coupling Ø31.5</i> |
| | | | | | | | <i>Toothed coupling</i> |
| | | | | 1 | M0620401 | Spring pin 5x40 DIN1481 | |
| | | | | 1 | S326490001 | Spring | |
| | | | | 1 | S415040080 | Bushing | |
| | | | | 1 | S329360082 | Washer | |
| | | | | 1 | M0666603 | Screw M6x16 UNI 5931 | |



- A** Anti-seize
- G** Harken® Grease
- T** Axial Threadlocker

Hydraulic motor

| Pos. | Q.ty | Code | Description | Pos. | Q.ty | Code | Description |
|------|------|-------------|----------------------------|------|------|------------|--|
| 1 | 1 | G045942000Y | Hydraulic motor W46-60 | 4 | 1 | A94149100 | KIT HY Motor Flange W46-70 |
| 2 | 1 | S415000080 | Hydraulic Motor Spacer | 6 | 6 | S415360003 | Hydraulic Motorgear Flange Screw M6x16 UNI EN ISO 5931 precote coating |
| 3 | 1 | A94193200 | KIT Clutch HY Motor W46-70 | 6 | 6 | M6015697 | O-Ring Seal ORM 0055-10 (Ø5,5xØ1) |
| | 1 | M0620401 | Toothed coupling | 1 | 1 | M6007297 | Lip seal Ø17xØ30x7 |
| | 1 | S415010080 | Connecting Coupling Ø31.5 | 2 | 2 | M0621503 | Washer D.13 U1751 DIN127 |
| | 1 | S326490001 | Spring pin 5x40 DIN1481 | 2 | 2 | M0667103 | Screw M12x35 UNI5931 |
| | 1 | S329360082 | Bushing | | | | |
| | 1 | S329360082 | Spring | | | | |
| | 1 | S329360082 | Washer | | | | |
| | 1 | M0635303 | Screw M8x16 UNI6109 | | | | |

