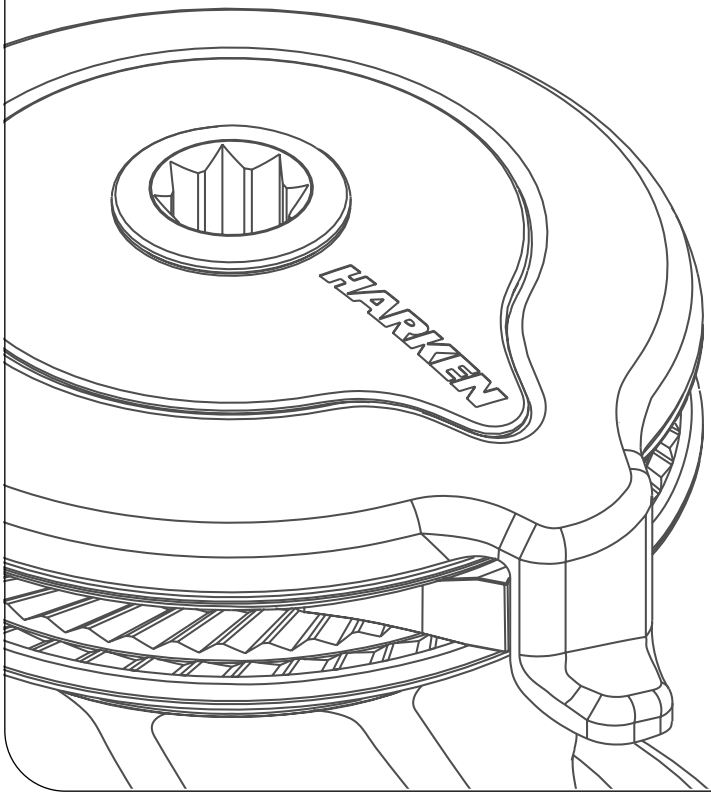
Installation and Maintenance Manual

MRW-F

Powered Radial Winch
60.3 ST EL/HY



HARKEN®

Introduction

This manual gives technical information on winch installation and maintenance, including disassembling and reassembling.
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.
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.
Installing third-party electrification kits voids the Harken® Limited Worldwide Warranty.

The installer is responsible for complying with all applicable safety regulations:
- Any residual risks must be analyzed based on the boat on which the system is installed and must be managed exclusively by the installing contractor.
- A safety management system must be implemented on each boat, including one or more emergency buttons.

The user remains responsible for the proper inspection and maintenance of each component of the system installed aboard.

Harken assumes no responsibility for the final design or the consequences of an accident.

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

NOTICE

To use and understand this manual, user must refer to other documents, available on web site www.harken.com and listed below:

- The Dual Funtion Control Box user manual, for the use of the Dual Function Control Box.
- The Dual Funtion Control Box installation manual, for all details, informations, wiring schemes and warnings about its installation

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.

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.

Performance data

Winch 60.3 ST EL (electric)

	horizontal motor								
	12V (1500W)			24V (2000W)			48V (2000W)		
	1st speed	2nd speed	3rd speed	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	43,9	20	6,7
max load (Kg)	290	600	1800	290	600	1800	290	600	1800

	vertical motor								
	12V (1500W)			24V (2000W)			48V (2000W)		
	1st speed	2nd speed	3rd speed	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	50,3	22,9	7,6
max load (Kg)	290	600	1800	290	600	1800	290	600	1800

**Line speed is measured with no load*

	motor nominal power (W)		current absorption at winch MWL (A)	
	12V	24V	12V	24V
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 35mm^2/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:

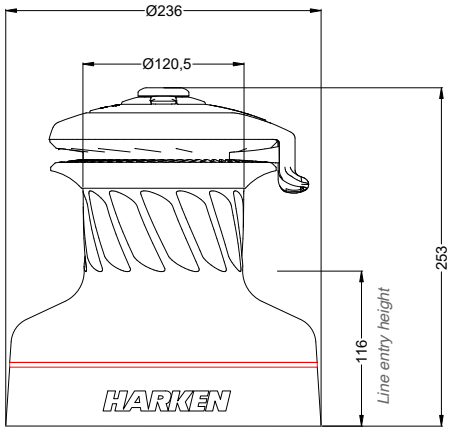
A = drum in anodised aluminium; C = drum in chrome bronze; CW = chrome/white

BBB = all bronze; CCC = All-Chrome bronze

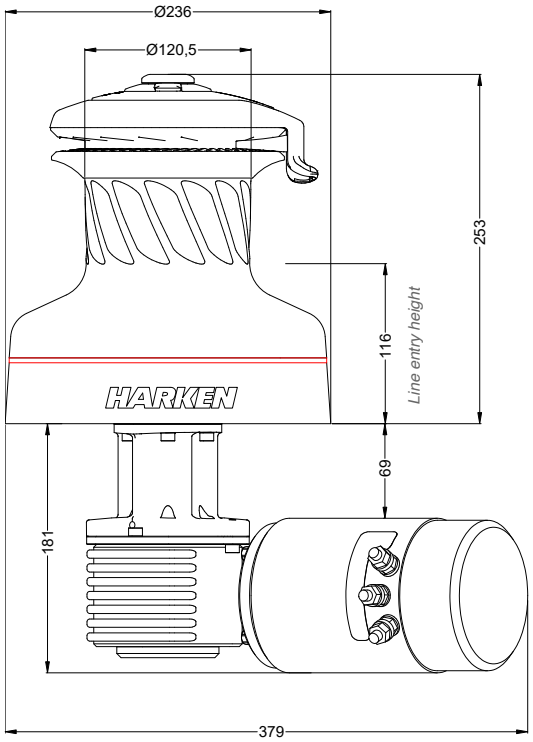
EH = horizontal electric winch ; EV = vertical electric winch; H = vertical hydraulic winch

Outline

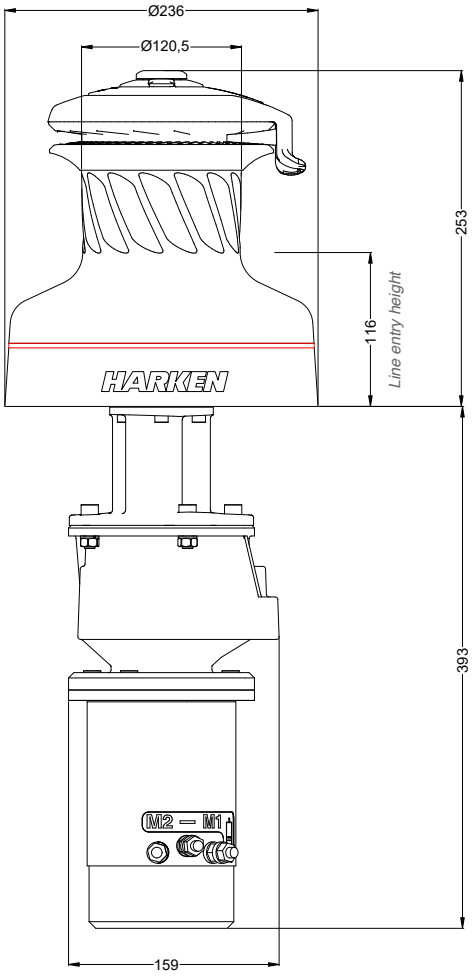
Winch 60.3 ST EL/HY



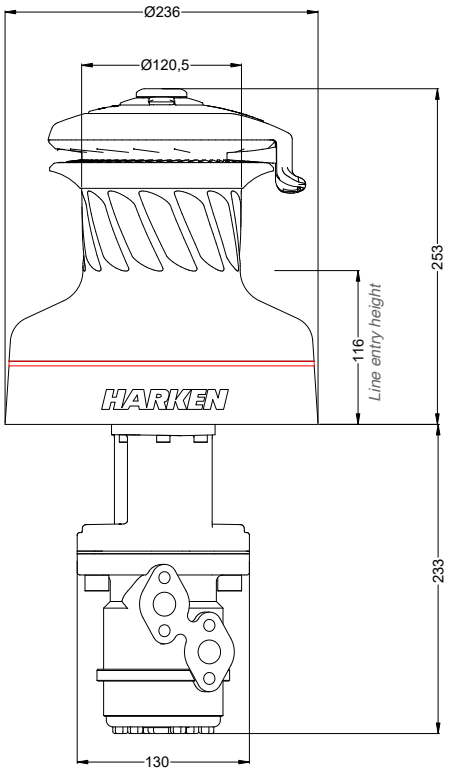
Horizontal electric motor (12V / 24V / 48V)



Vertical electric motor (12V / 24V / 48V)



Hydraulic motor



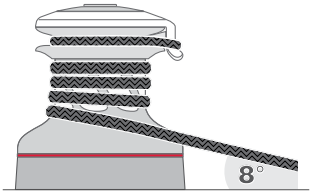
Installation

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.

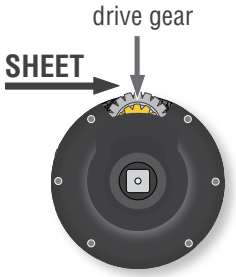
DANGER!
Incorrect installation of the winch may cause severe injury or death. Consult the yard that built the boat in the case of doubt over the correct positioning of the winch.

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 ±2°, 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.



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

Installation Procedure

To install the winch, 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

2. Unscrew the central screw (🔧2Nm/18 in-lb)

3. Slide off the assy socket and the cover

4. Unscrew the three screws (🔧4Nm/35 in-lb)

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

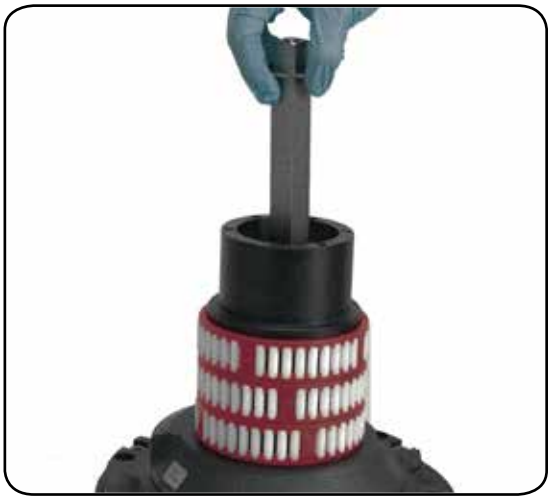
6. Lift off the drum

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

8. Slide out the assy clutch



9. Slide out the central shaft

10. Unscrew the 6 hex screws
(🔧20Nm/177 in-lb)

11. Remove the drum support

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 (HH) M8 bolts.

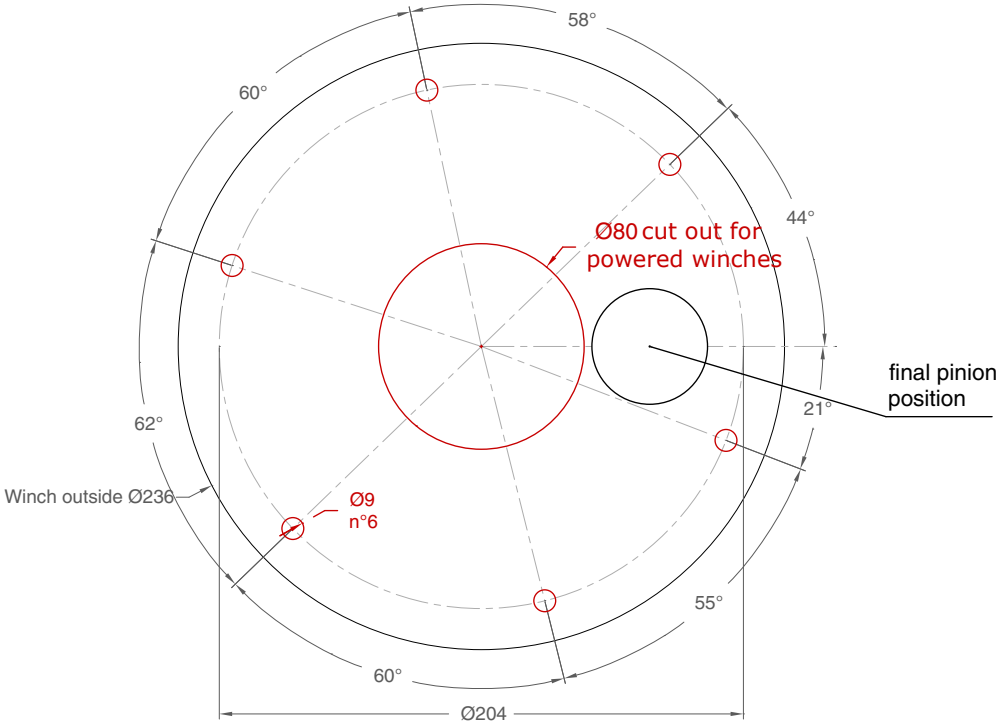
Winch installation procedure

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

NOTICE
Before drilling the deck, check the space available below deck for the flange and the motor

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 part11).
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.

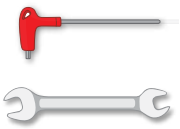
Motor installation procedure

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

WARNING!
The entire gearmotor assembly is IP54 graded: install the gearmotor under the deck, in a dry place and protected from the external environment, in a position where it is possible to check its status.

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

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/ 71in-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 equipment

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

To fasten the Dual Function Control Box containing solenoids to bulkhead or wall, for all installation details and for all electric wiring schemes, refer to the Dual Function Control Box manual.

WARNING!
Before installing and using the device, read carefully the Dual Function Control Box manual available on website www.harken.com

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 mm²	16.4 - 32.8 ft AWG	5 m - 10 m mm²	32.8 - 49.2 ft AWG	10 m - 15 m mm²	49.2 - 65.6 ft AGW	15m - 20 m mm²
60.3	12V	2	32	0	50	00	70	000	95
60.3	24V	5	16	3	25	2	35	0	50
60.3	48V	8	8	6	14	4	18	3	25

Refer to the following chart for HCP model:

Winch size	Current voltage	HCP model	Ampere rating
60.3	12V	HCP1720	135A
60.3	24V	HCP1717	80A
60.3	48V	HCP1717	80A

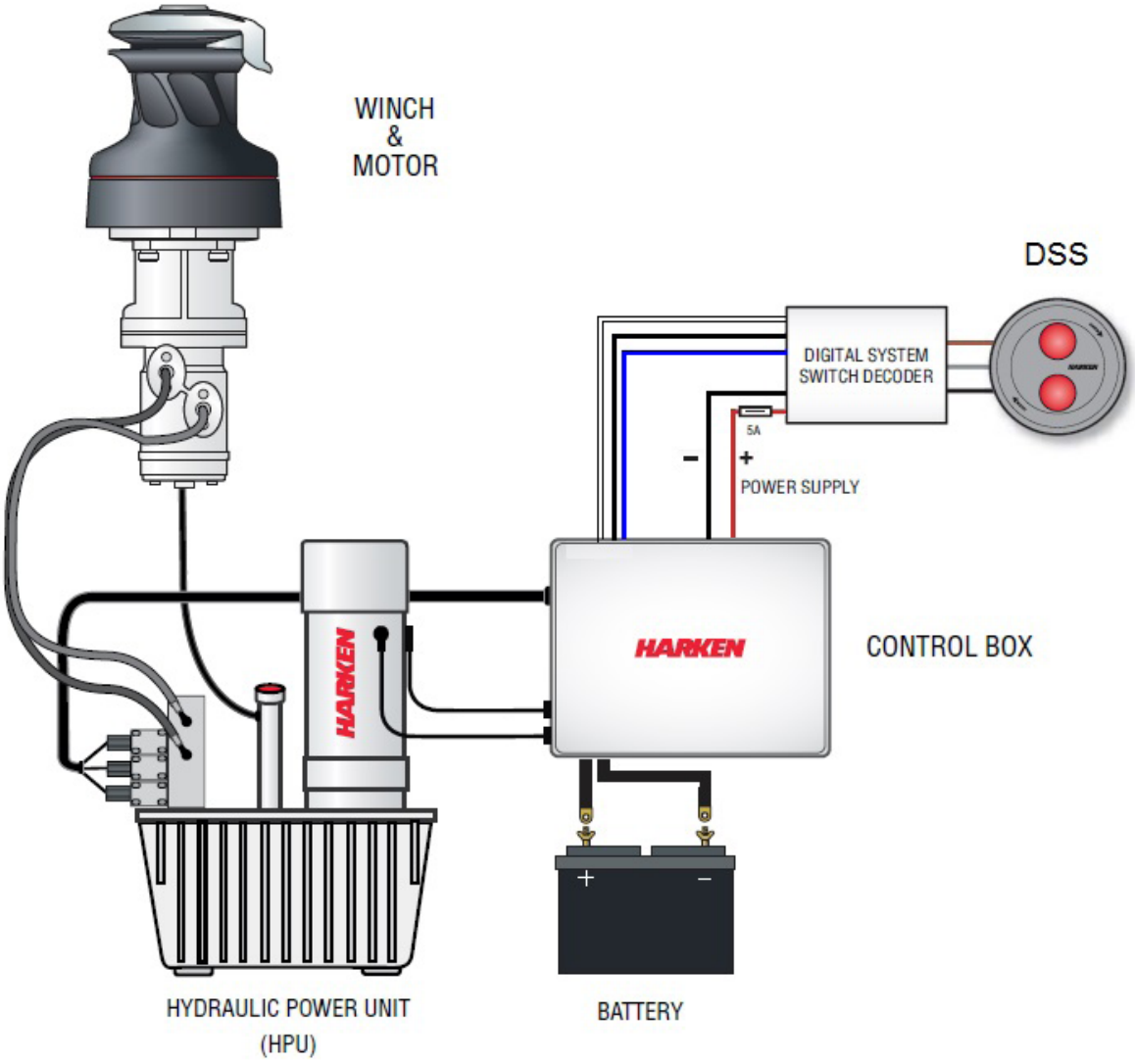
NOTICE
To connect motor, attach cable terminals to clamps between nut and lock nut. Hold nut in contact with motor using a spanner and tighten other nut with second spanner. Take special care not to turn the central spindles. These instructions apply when assembling and disassembling. We recommend using 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.

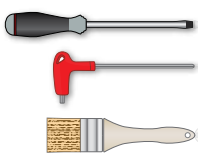
WARNING!
Periodic maintenance must be carried out regularly. Lack of adequate maintenance shortens the life of the winch, can cause serious injury and also invalidate the winch warranty. Installation and maintenance of winches must be carried out exclusively by specialized personnel.

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

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

Disassembly procedure

Tools needed:



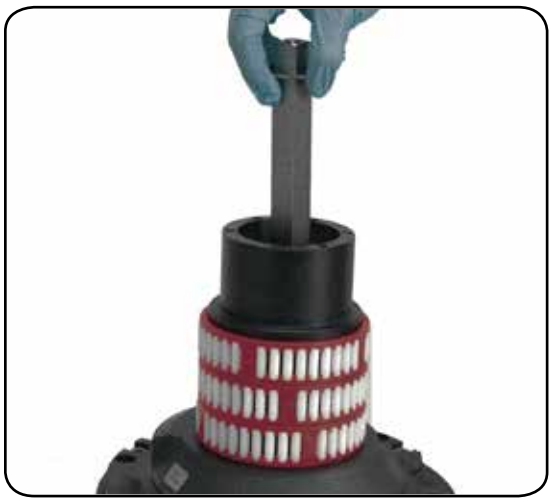
One medium flat-bladed screwdriver
A number six hex key
Brush
Rags

Torque to be applied in assembly phase

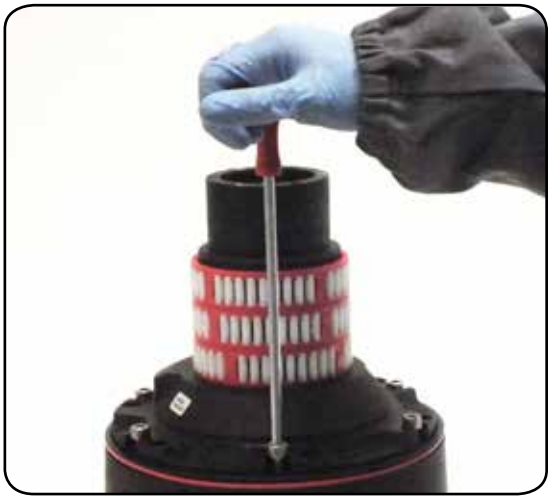
Carry out **Installation procedure** (page 7) as shown in the paragraph on winch installation and then do the following:

7. Remove the stripper arm housing

8. Slide out the assy clutch



9. Slide out the central shaft



10. Unscrew the 6 hex screws
(🔧20Nm/177 in-lb)

11. Slide out the drum support

12. Remove the gear, pawls carrier, the bearings and the spring

Important: washer may remain inside the drum support!

13. Remove the gear, pawls carrier and the washer

14. Remove the idler and pinion

15. Remove the pawl carrier

16. Remove gear

17. Remove the gear

18. Remove the roller bearing

18. Remove roller bearings

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

I. Unscrew the 4 screws
(🔧4Nm/35 in-lb)

II. Remove the jaws

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 with a degreasing that does not leave residues, proper to clean metal components; 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.

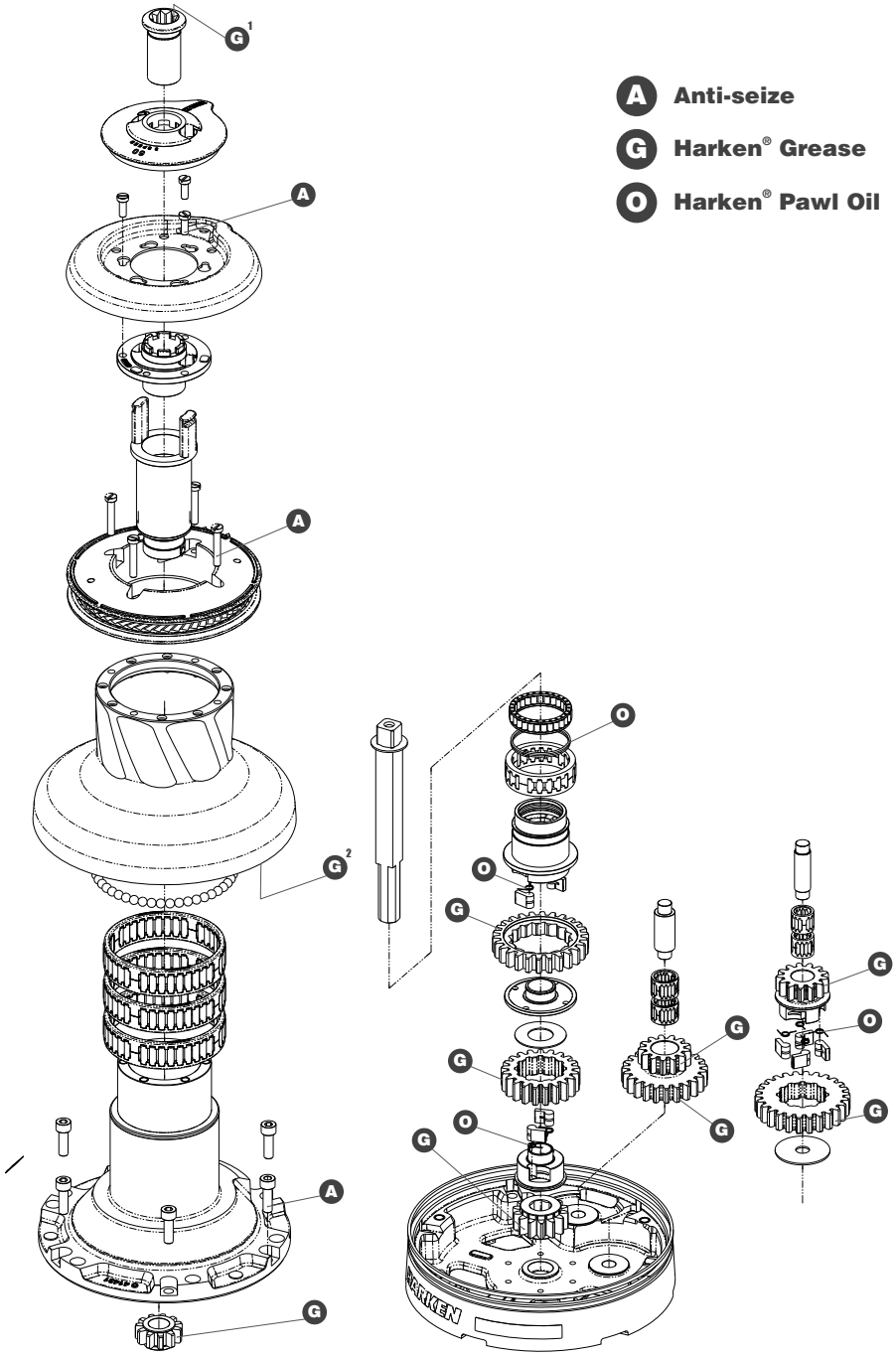
Carry out maintenance on components using the products listed below.

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!

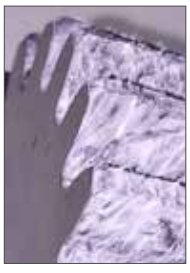
Exploded view with maintenance products



Apply Harken® grease where indicated above
Apply Harken® grease: 1. on assy socket screw - 2. on drum gear

NOTICE

On every gear and every component that must be greased, apply Harken® grease with a brush in a proper quantity as shown below:

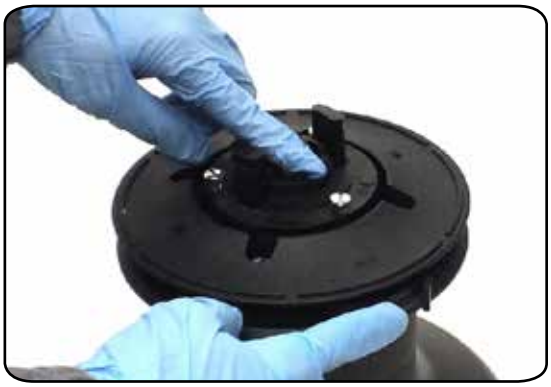


NOTICE

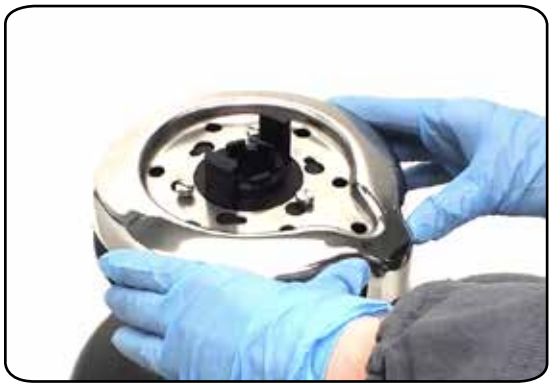
Harken® grease to apply on all teeth: do not use excessive quantity of product to void wastes. If in contact with the pawls, an excess of grease can compromise the safety of the winch.

Assembly

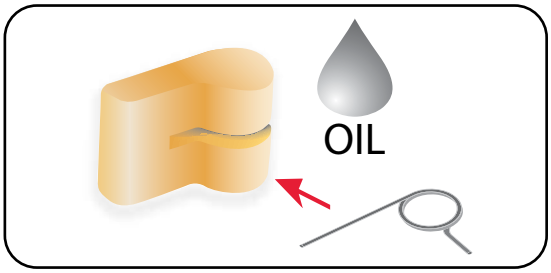
Make sure that the holes and drainage channels in the base of the winch are not obstructed.
Assemble the winch in the reverse order of the sequence in the section on disassembly.
To tighten bolts, use the torque indicated in the disassembly procedure.



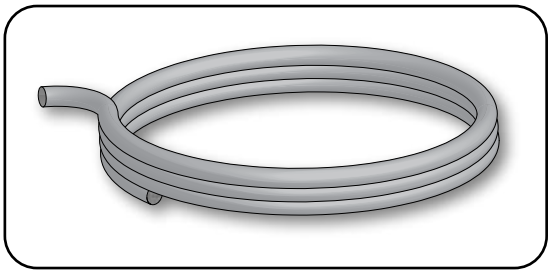
The icon ▲ on the Stripper Arm Housing indicates the Stripper Arm final position. Change the Stripper Arm Housing angle to modify the Stripper Arm final position.



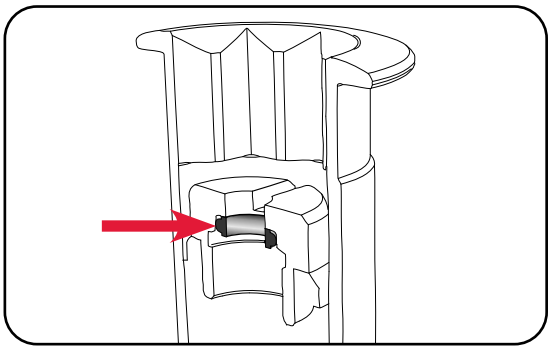
When positioning the stripper arm, align the peeler with it.
If the jaws have been disassembled, insert peeler between the two jaws, taking care that the letters TOP on the peeler are facing upwards.



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.

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.

Manufacturer

Harken® Italy S.p.A.
Via Marco Biagi, 14
22070 Limido Comasco (CO) Italy
Tel: **(+39) 031.3523511**
Fax: **(+39) 031.3520031**
Email: **info@harken.it**
Web: **www.harken.com**

- **Tech Service**
  Email: **techservice@harken.it**
- **Customer Service**
  Tel: **(+39) 031.3523511**
  Email: **info@harken.it**

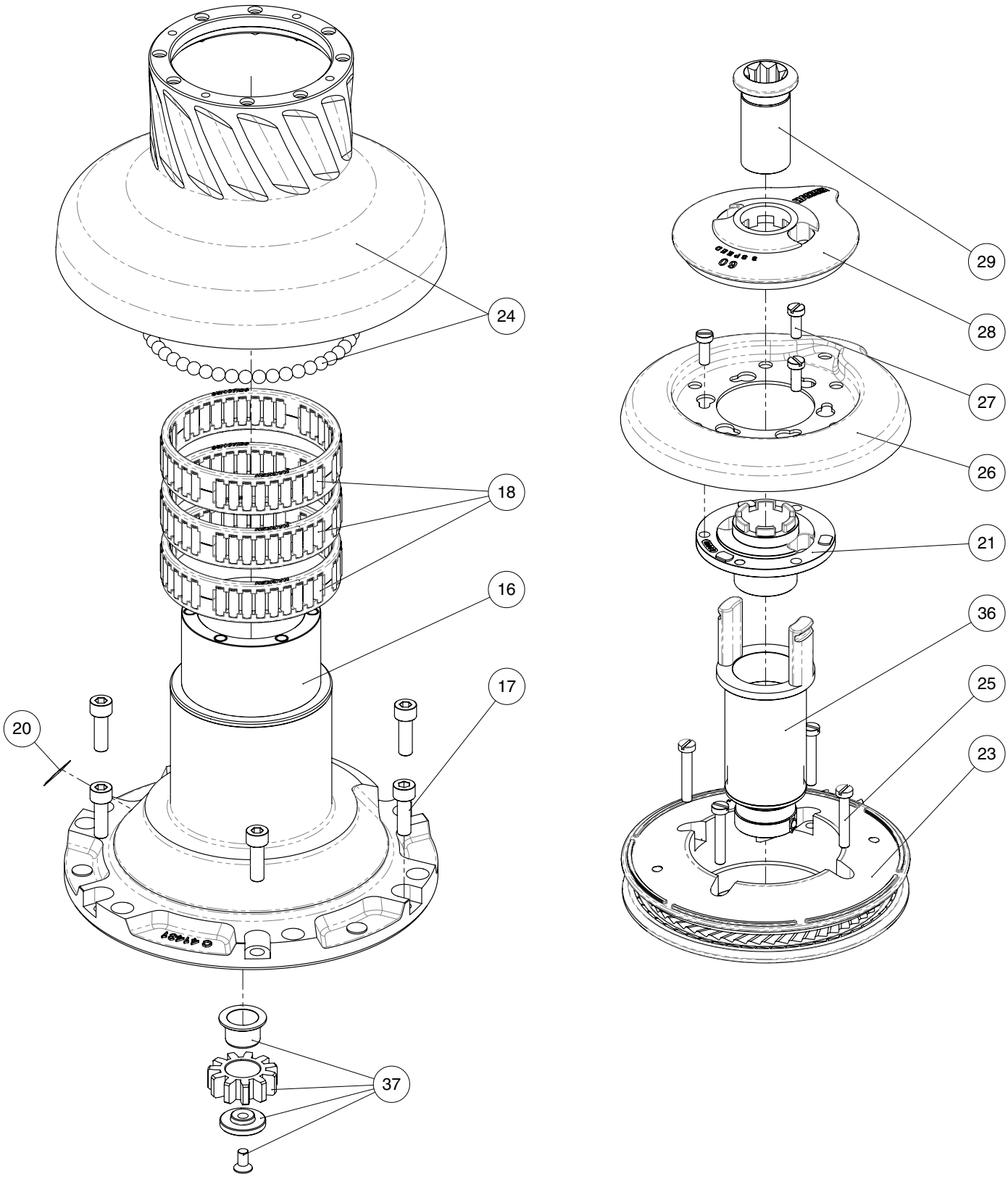
Headquarters

Harken®, Inc.
1251 East Wisconsin Avenue
Pewaukee, Wisconsin 53072-3755 USA
Tel: **(262) 691.3320**
Fax: **(262) 691.3008**
Email: **harken@harken.com**
Web: **www.harken.com**

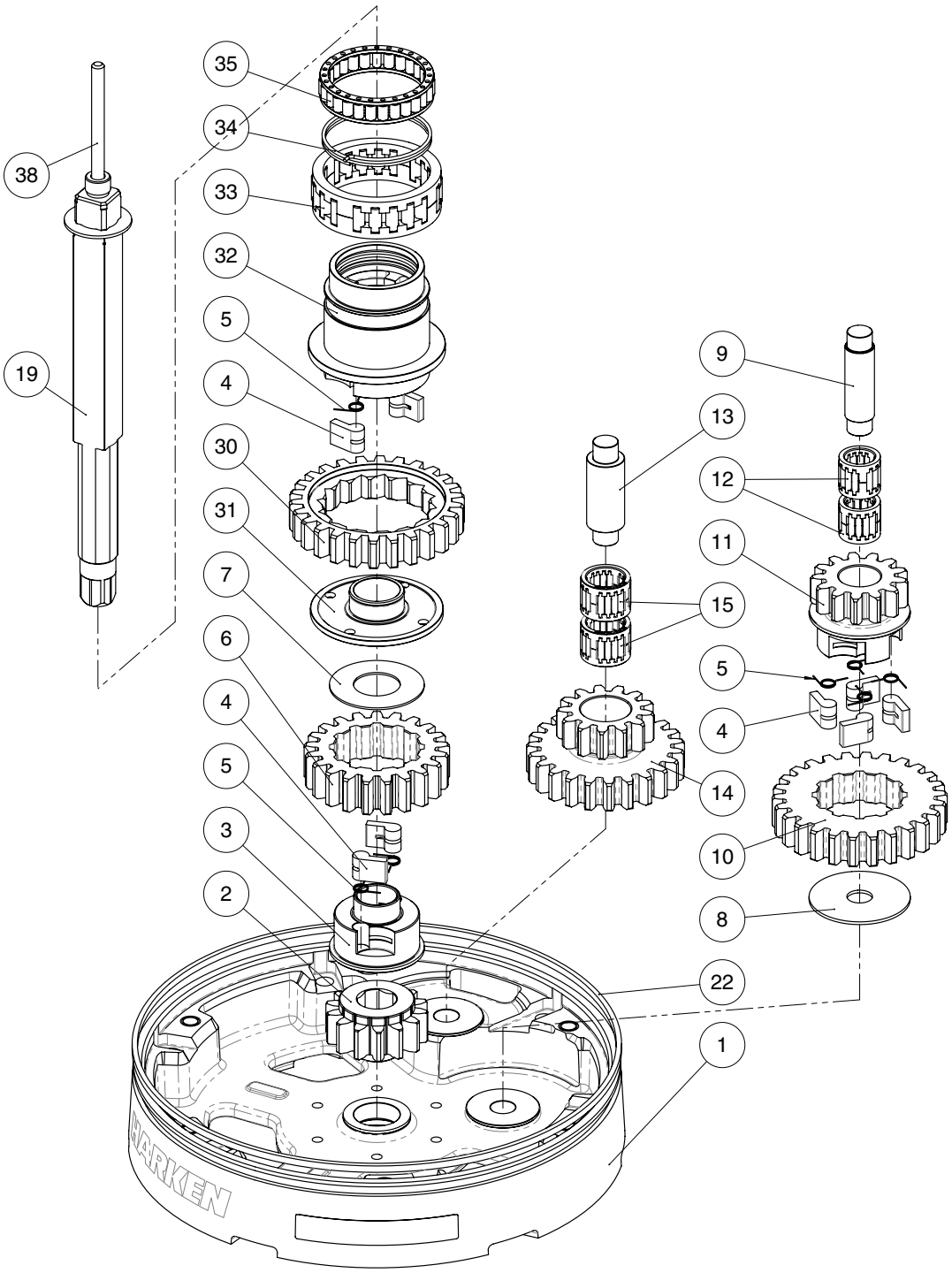
- **Tech Service**
  Email: **technicalservice@harken.com**
- **Customer Service**
  Tel: **(262) 691-3320**
  Email: **customerservice@harken.com**

Exploded view

Radial Winch 60.3 STA, STC, STCW EL/HY



Radial Winch 60.3 STA, STC, STCW EL/HY



Parts List

Radial Winch 60.3 STA EL/HY

A = drum in anodised aluminium

Pos.	Q.ty	Code	Description
1	1	A94189900	Assy Base W60 EL/HY
			Base W60
	1	S476030004	*Centering bushing Ø12*
	1	S4130900A7	*Bushing Ø22xØ25x8.5*
	2	S415580085	*Bushing Ø12xØ35x9*
			*Winch Product Sticker***
2	1	S414400004	Gear Z14 W60
3	1	S413030004	Pawls Carrier Ø8xN2
4	8	S000090004	Pawl Ø8*
5	8	S000380001	Pawl Spring Ø8*
6	1	S414390041	Ratchet Gear Z21xN2
7	1	S413120002	Washer Ø22.5xØ45x1
8	1	S278170002	Washer Ø12.5xØ48x1.5
9	1	S281010004	Pin for gear
10	1	S414420041	Ratchet Gear Z26xN4
11	1	S414410004	Pawls Carrier Gear Z13 N4
12	2	A72821800	Roller Bearing Ø14xØ20x18
13	1	S416030004	Gear Pin Ø12xØ18x52,5
14	1	S414480004	Idler and Pinion Z23/Z13 W60
15	2	A74162300	Roll bearing Ø24xØ18x18
16	1	A94190800	Assy Housing Winch 60.3
			Housing W60
	2	S415580085	*Bushing Ø12xØ35x9*
	1	S415810081	*Bushing*
17	6	M0606303	Screw M8x25 UNI 5931
18	3	A74145000	Roller Bearing Ø95xØ107x26
19	1	A96753600	Assy Shaft Winch 60
			Central Shaft Pred. W60
	1	S413880002	*Washer Ø17.2xØ32x1.5*
20			Winch Serial Number Sticker
21	1	S4155700A0	Stripper arm support
22	1	S281700097	Red line

Pos.	Q.ty	Code	Description
23	1	A94143500	Assy Jaws Winch 60
			Lower Jaw W60
			Upper Jaw W60
	1	S414850080	*Peeler W60 - 70*
	4	S385970001	*Spring*
24	1	A96965900	Drum spare kit Winch 60
			Drum assembly Winch 60
	47	M0610280	Ball 5/16"
25	4	M0601803	Screw UNI EN ISO 1207 - M6x35 - A4
26	1	S414460019	Stripper arm Winch 60
27	3	M0601903	Screw M6x16 UNI1207
28	1	S4167500B1	Cover 3 Speed W60
29	1	A94191400	Assy Socket Handle Winch 3speed EL/HY
			Socket Handle 3 speed
	1	S414940085	*Washer Ø25xØ15x4*
	1	S414930003	*Nut Screw for Disconnect Rod*
	1	M0679797	*O ring RC 2025 series*
30	1	S280870041	Gear 1V
31	1	S414580081	Shim Bushing 3 speed
32	1	S415400004	Pawls Carrier 3 speed
33	1	A73129200	Roller bearing 50-62-20
34	1	S377510001	Clutch spring
35	1	A73422600	Bearing Ø45xØ55x12
36	1	A94158000	Assy Clutch 3rd speed W60
			Assy Command tube W60
	1	S415420004	*Dog Clutch 3 speed*
	2	M6009463	*Spring loaded ball plunger Ø6*
37	1	A94145300	Assy Gear 3rd speed
	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	Disconnect rod W60.3

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

***Winch product sticker*

Radial Winch 60.3 STC EL/HY

C = drum in chrome bronze

Pos.	Q.ty	Code	Description
1	1	A94189900	Assy Base W60 EL/HY
			Base W60
	1	S476030004	*Centering bushing Ø12*
	1	S4130900A7	*Bushing Ø22xØ25x8.5*
	2	S415580085	*Bushing Ø12xØ35x9*
			*Winch Product Sticker***
2	1	S414400004	Gear Z14 W60
3	1	S413030004	Pawls Carrier Ø8xN2
4	8	S000090004	Pawl Ø8*
5	8	S000380001	Pawl Spring Ø8*
6	1	S414390041	Ratchet Gear Z21xN2
7	1	S413120002	Washer Ø22.5xØ45x1
8	1	S278170002	Washer Ø12.5xØ48x1.5
9	1	S281010004	Pin for gear
10	1	S414420041	Ratchet Gear Z26xN4
11	1	S414410004	Pawls Carrier Gear Z13 N4
12	2	A72821800	Roller Bearing Ø14xØ20x18
13	1	S416030004	Gear Pin Ø12xØ18x52,5
14	1	S414480004	Idler and Pinion Z23/Z13 W60
15	2	A74162300	Roll bearing Ø24xØ18x18
16	1	A94190800	Assy Housing Winch 60.3
			Housing W60
	2	S415580085	*Bushing Ø12xØ35x9*
	1	S415810081	*Bushing*
17	6	M0606303	Screw M8x25 UNI 5931
18	3	A74145000	Roller Bearing Ø95xØ107x26
19	1	A96753600	Assy Shaft Winch 60
			Central Shaft Pred. W60
	1	S413880002	*Washer Ø17.2xØ32x1.5*
20			Winch Serial Number Sticker
21	1	S4155700A0	Stripper arm support
22	1	S281700097	Red line

Pos.	Q.ty	Code	Description
23	1	A94143500	Assy Jaws Winch 60
			Lower Jaw W60
			Upper Jaw W60
	1	S414850080	*Peeler W60 - 70*
	4	S385970001	*SPRING*
24	1	A94143400	Drum spare kit Winch 60
			Drum assembly Winch 60 C
	47	M0610280	Ball 5/16"
25	4	M0601803	Screw UNI EN ISO 1207 - M6x35 - A4
26	1	S414460019	Stripper arm Winch 60
27	3	M0601903	Screw M6x16 UNI1207
28	1	S4167500B1	Cover 3 Speed W60
29	1	A94191400	Assy Socket Handle Winch 3speed EL/HY
			Socket Handle 3 speed
	1	S414940085	*Washer Ø25xØ15x4*
	1	S414930003	*Nut Screw for Disconnect Rod*
	1	M0679797	*O ring RC 2025 series*
30	1	S280870041	Gear 1V
31	1	S414580081	Shim Bushing 3 speed
32	1	S415400004	Pawls Carrier 3 speed
33	1	A73129200	ROLLER BEARING 50-62-20
34	1	S377510001	Clutch Spring
35	1	A73422600	Bearing Ø45xØ55x12
36	1	A94158000	Assy Clutch 3rd speed W60
			Assy Command tube W60
	1	S415420004	*Dog Clutch 3 speed*
	2	M6009463	*Spring loaded ball plunger Ø6*
37	1	A94145300	Assy Gear 3rd speed
	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	Disconnect rod W60.3

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

***Winch product sticker*

Radial Winch 60.3 STCW EL/HY

CW = chrome/white

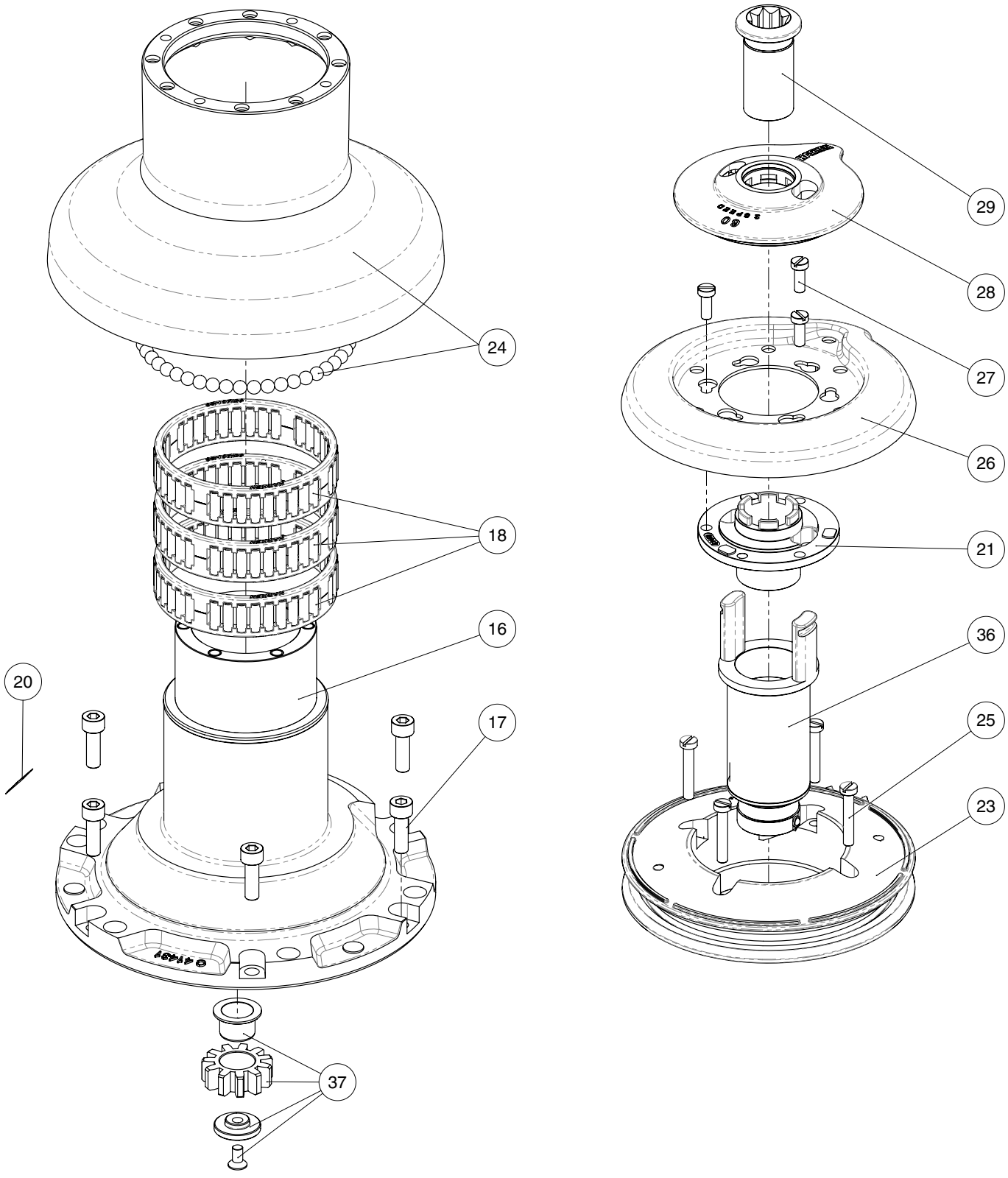
Pos.	Q.ty	Code	Description
1	1	A96726100W	Base Assy W60 STC W EL/HY
			Base W60
	1	S6616600A5W	*Skirt W60 RAL9003*
	1	S476030004	*Centering bushing Ø12*
	1	S4130900A7	*Bushing Ø22xØ25x8.5*
	2	S415580085	*Bushing Ø12xØ35x9*
			*Winch Product Sticker***
2	1	S414400004	Gear Z14 W60
3	1	S413030004	Pawls Carrier Ø8xN2
4	8	S000090004	Pawl Ø8*
5	8	S000380001	Pawl Spring Ø8*
6	1	S414390041	Ratchet Gear Z21xN2
7	1	S413120002	Washer Ø22.5xØ45x1
8	1	S278170002	Washer Ø12.5xØ48x1.5
9	1	S281010004	Pin for gear
10	1	S414420041	Ratchet Gear Z26xN4
11	1	S414410004	Pawls Carrier Gear Z13 N4
12	2	A72821800	Roller Bearing Ø14xØ20x18
13	1	S416030004	Gear Pin Ø12xØ18x52,5
14	1	S414480004	Idler and Pinion Z23/Z13 W60
15	2	A74162300	Roll bearing Ø24xØ18x18
16	1	A94190800	Assy Housing Winch 60.3
			Housing W60
	2	S415580085	*Bushing Ø12xØ35x9*
	1	S415810081	*Bushing*
17	6	M0606303	Screw M8x25 UNI 5931
18	3	A74145000	Roller Bearing Ø95xØ107x26
19	1	A94143800	Assy Shaft Winch 60
			Central shaft W60 ST
	1	S413880002	*Washer Ø17.2xØ32x1.5*
20			Winch Serial Number Sticker
21	1	S4155700A0	Stripper arm support
22	-	-	-

Pos.	Q.ty	Code	Description
23	1	A94143500W	Assy Jaws Winch 60 RAL 9003
			Lower Jaw W60 RAL9003
			Upper Jaw W60 RAL9003
	1	S414850080W	*Peeler W60 - 70 RAL9003*
	4	S385970001	*SPRING*
24	1	A94143400	Drum spare kit Winch 60
			Drum assembly Winch 60 C
	47	M0610280	Ball 5/16"
25	4	M0601803	Screw UNI EN ISO 1207 - M6x35 - A4
26	1	S414460019	Stripper arm Winch 60
27	3	M0601903	Screw M6x16 UNI1207
28	1	S4167500B1W	Cover 3 Speed W60 RAL9003
29	1	A94154700	Assy Socket 3speed
			Socket Handle 3 speed
	1	S415130085	*Washer Ø7.7xØ25x5.8*
	1	M0614303	*Screw M8x20 UNI 6109*
30	1	S280870041	Gear 1V
31	1	S414580081	Shim Bushing 3 speed
32	1	S415400004	Pawls Carrier 3 speed
33	1	A73129200	ROLLER BEARING 50-62-20
34	1	S377510001	Clutch Spring
35	1	A73422600	Bearing Ø45xØ55x12
36	1	A94158000	Assy Clutch 3rd speed W60
			Assy Command tube W60
	1	S415420004	*Dog Clutch 3 speed*
	2	M6009463	*Spring loaded ball plunger Ø6*
37	1	A94145300	Assy Gear 3rd speed
	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	Disconnect rod W60.3

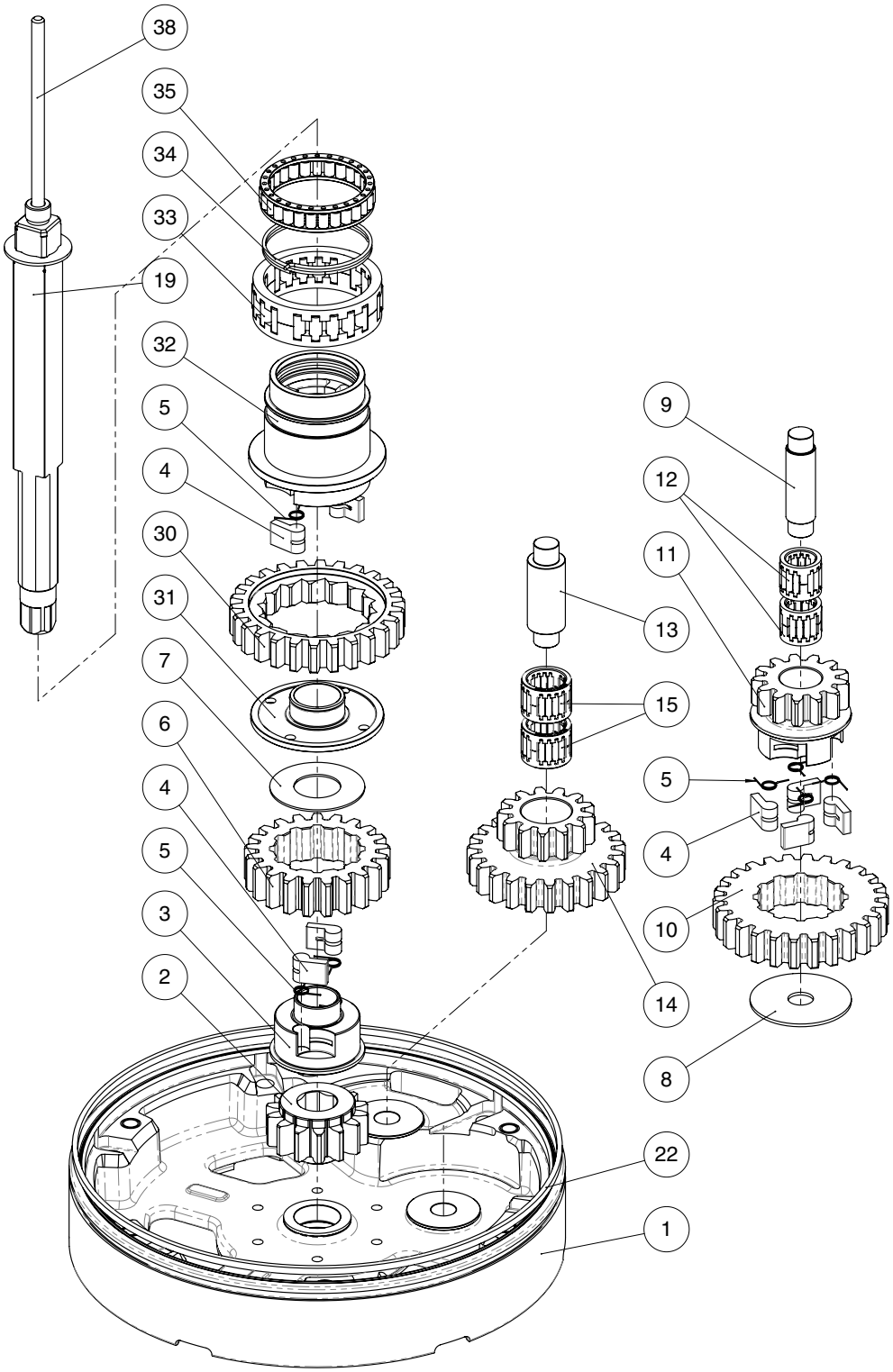
**Available with service kit; see website www.harken.com*

***Winch product sticker*

Radial Winch 60.3 STBBB, STCCC EL/HY



Radial Winch 60.3 STBBB, STCCC EL/HY



Radial Winch 60.3 STBBB EL/HY

BBB = all bronze

Pos.	Q.ty	Code	Description
1	1	A96978700	Assy base Winch 60 STBBB
			Base W60
	1	S690870043	*Cover for base W60 BBB*
	1	S476030004	*Centering bushing Ø12*
	1	S4130900A7	*Bushing Ø22xØ25x8.5*
	2	S415580085	*Bushing Ø12xØ35x9*
			*Winch Product Sticker***
2	1	S414400004	Gear Z14 W60
3	1	S413030004	Pawls Carrier Ø8xN2
4	8	S000090004	Pawl Ø8*
5	8	S000380001	Pawl Spring Ø8*
6	1	S414390041	Ratchet Gear Z21xN2
7	1	S413120002	Washer Ø22.5xØ45x1
8	1	S278170002	Washer Ø12.5xØ48x1.5
9	1	S281010004	Pin for gear
10	1	S414420041	Ratchet Gear Z26xN4
11	1	S414410004	Pawls Carrier Gear Z13 N4
12	2	A72821800	Roller Bearing Ø14xØ20x18
13	1	S416030004	Gear Pin Ø12xØ18x52,5
14	1	S414480004	Idler and Pinion Z23/Z13 W60
15	2	A74162300	Roll bearing Ø24xØ18x18
16	1	A94190800	Assy Housing Winch 60.3
			Housing W60
	2	S415580085	*Bushing Ø12xØ35x9*
	1	S415810081	*Bushing*
17	6	M0606303	Screw M8x25 UNI 5931
18	3	A74145000	Roller Bearing Ø95xØ107x26
19	1	A96753600	Assy Shaft Winch 60
			Central Shaft Pred. W60
	1	S413880002	*Washer Ø17.2xØ32x1.5*
20			Winch Serial Number Sticker
21	1	S4155700A0	Stripper arm support
22	1	S281700097	Red line

Pos.	Q.ty	Code	Description
23	1	A96924100	Assy Jaws Winch 60 BBB
			Lower Jaw W60 BBB
			Upper Jaw W60
	1	S414850080	*Peeler W60 - 70*
	4	S385970001	*SPRING*
24	1	A96923900	Spare kit drum Winch 60
			Drum assembly W60 BBB
	47	M0610280	Ball 5/16"
25	4	M0601803	Screw UNI EN ISO 1207-M6x35 - A4
26	1	S7123300F0	Stripper arm Winch 60 BBB
27	3	M0601903	Screw M6x16 UNI1207
28	1	A76907400	Cover W60 BBB
29	1	A94191400	Assy Socket Handle Winch 3speed EL/HY
			Socket handle 3 speed
	1	S414940085	*Washer Ø25xØ15x4*
	1	S414930003	*Nut Screw for Disconnect*
	1	M0679797	*Rod*
			O ring RC 2025 series
30	1	S280870041	Gear 1V
31	1	S414580081	Shim Bushing 3 speed
32	1	S415400004	Pawls Carrier 3 speed
33	1	A73129200	ROLLER BEARING 50-62-20
34	1	S377510001	Clutch Spring
35	1	A73422600	Bearing Ø45xØ55x12
36	1	A94158000	Assy Clutch 3rd speed W60
			Assy Command tube W60
	1	S415420004	*Dog Clutch 3 speed*
	2	M6009463	*Spring loaded ball plunger Ø6*
37	1	A94145300	Assy Gear 3rd speed
	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	Disconnect rod W60.3

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

***Winch product sticker*

Radial Winch 60.3 STCCC EL/HY

CCC = All-Chrome bronze

Pos.	Q.ty	Code	Description
1	1	A96978800	Assy base Winch 60 STCCC
			Base W60
	1	S690910043	*Cover for base W60 CCC*
	1	S476030004	*Centering bushing Ø12*
	1	S4130900A7	*Bushing Ø22xØ25x8.5*
	2	S415580085	*Bushing Ø12xØ35x9*
			*Winch Product Sticker***
2	1	S414400004	Gear Z14 W60
3	1	S413030004	Pawls Carrier Ø8xN2
4	8	S000090004	Pawl Ø8*
5	8	S000380001	Pawl Spring Ø8*
6	1	S414390041	Ratchet Gear Z21xN2
7	1	S413120002	Washer Ø22.5xØ45x1
8	1	S278170002	Washer Ø12.5xØ48x1.5
9	1	S281010004	Pin for gear
10	1	S414420041	Ratchet Gear Z26xN4
11	1	S414410004	Pawls Carrier Gear Z13 N4
12	2	A72821800	Roller Bearing Ø14xØ20x18
13	1	S416030004	Gear Pin Ø12xØ18x52,5
14	1	S414480004	Idler and Pinion Z23/Z13 W60
15	2	A74162300	Roll bearing Ø24xØ18x18
16	1	A94190800	Assy Housing Winch 60.3
			Housing W60
	2	S415580085	*Bushing Ø12xØ35x9*
	1	S415810081	*Bushing*
17	6	M0606303	Screw M8x25 UNI 5931
18	3	A74145000	Roller Bearing Ø95xØ107x26
19	1	A94161200	Assy Shaft Winch 60
			Central Shaft Pred. W60
	1	S413880002	*Washer Ø17.2xØ32x1.5*
20			Winch Serial Number Sticker
21	1	S4155700A0	Stripper arm Housing
22	1	S281700097	Red line

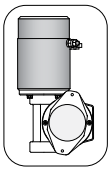
Pos.	Q.ty	Code	Description
23	1	A96812200	Assy Jaws Winch 60 CCC
			Lower Jaw W60 CCC
			Upper Jaw W60 RAL9003
	1	S414850080W	*Peeler W60 - 70 RAL9003*
	4	S385970001	*SPRING*
24	1	A94143400	Drum spare kit Winch 60
			Drum assembly Winch 60 C
	47	M0610280	Ball 5/16"
25	4	M0601803	Screw UNI EN ISO 1207-M6x35 - A4
26	1	S414460019	Stripper arm Winch 60
27	3	M0601903	Screw M6x16 UNI1207
28	1	A76907200	Cover W60.3 CCC
29	1	A94154700	Assy Socket 3speed
			Socket Handle 3 speed
	1	S414940085	*Washer Ø25xØ15x4*
	1	S414930003	*Nut Screw for Disconnect Rod*
	1	M0679797	*O ring RC 2025 series*
30	1	S280870041	Gear 1V
31	1	S414580081	Shim Bushing 3 speed
32	1	S415400004	Pawls Carrier 3 speed
33	1	A73129200	ROLLER BEARING 50-62-20
34	1	S377510001	Clutch Spring
35	1	A73422600	Bearing Ø45xØ55x12
36	1	A94158000	Assy Clutch 3rd speed W60
			Assy Command tube W60
	1	S415420004	*Dog Clutch 3 speed*
	2	M6009463	*Spring loaded ball plunger Ø6*
37	1	A94145300	Assy Gear 3rd speed
	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	Disconnect rod W60.3

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

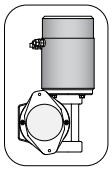
***Winch product sticker*

Horizontal electric motor 12V / 24V / 48V

TOP VIEW

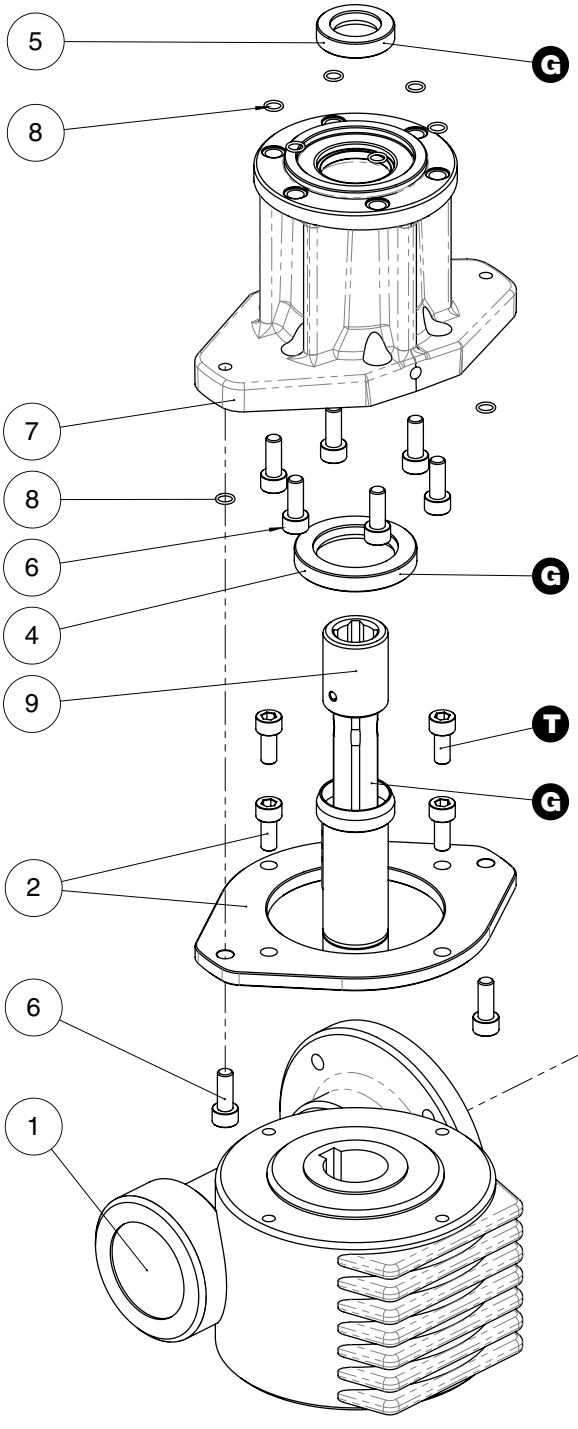


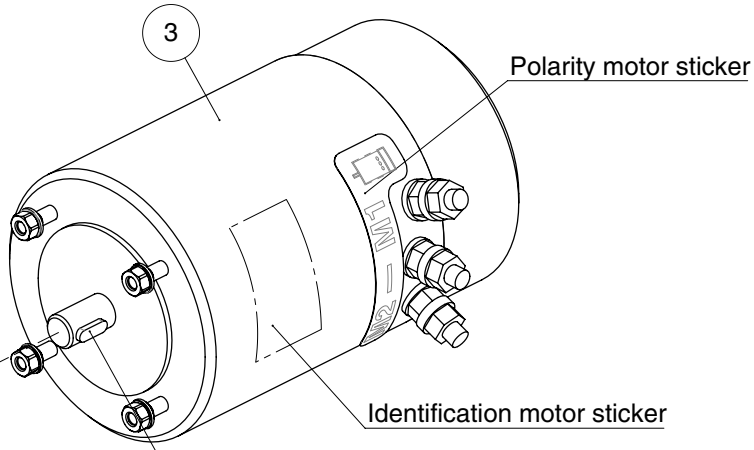
* ***Motor installed in right-hand configuration.***



** ***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
			Electric Motor Flange
	4	M0606803	*Screw M6x14 UNI 5931*
3	1	A96010700	KIT EL Motor 12V 1,5kW
	1	A96010600	KIT EL Motor 24V 2kW
	1	A97707300	KIT EL Motor 48V 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 8752:2000- 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**

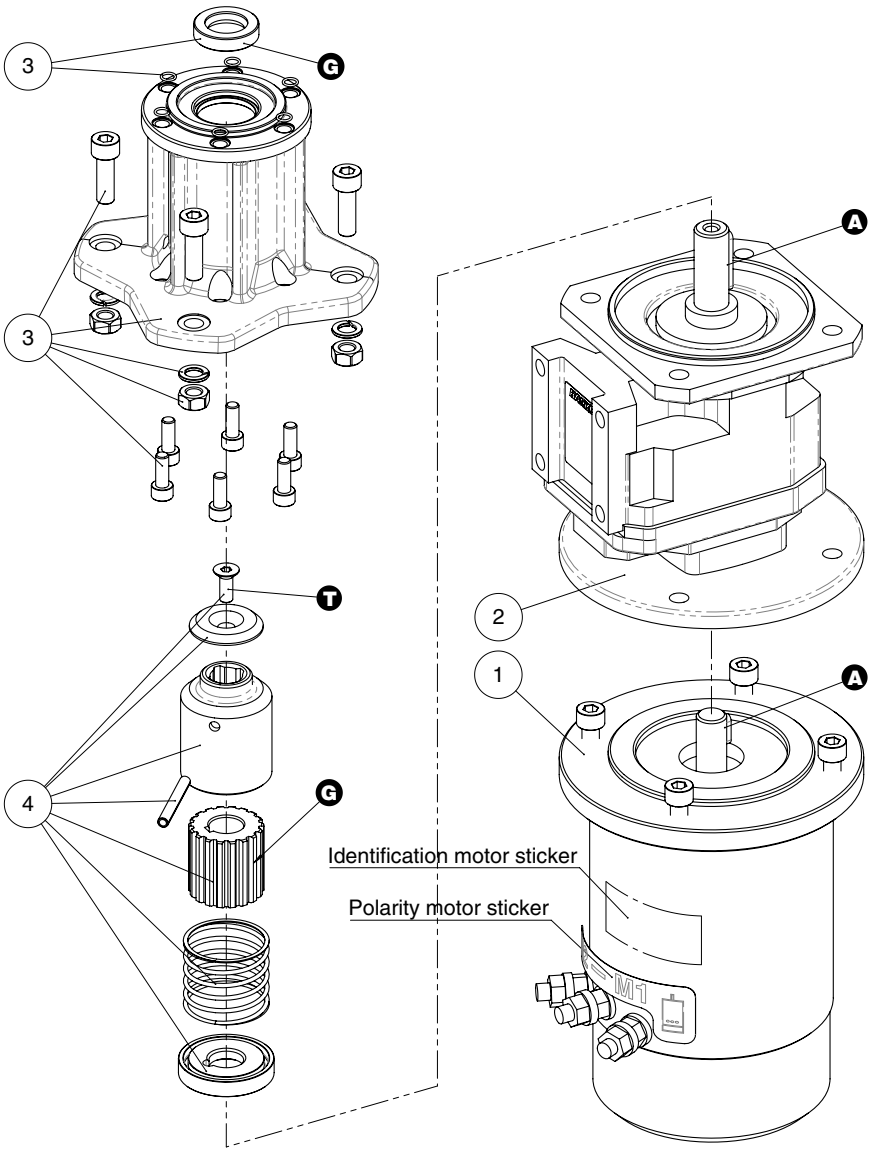
G **Harken® Grease**

T **Axial Threadlocker**

Vertical electric motor 12V / 24V / 48V

Pos.	Q.ty	Code	Description
1	1	A94150500	KIT EL VT Motor Flange
	1		Vertical Motorgear Flange
	1		Lip seal 17x30x7
	6		Seal Ø5,5 x Ø 1
	6	S415360003	*Screw M6x16 UNI EN ISO 5931:2003*
	4	M0606303	*Screw M8x25 UNI 5931*
	4	M0602903	*NUT M8 - UNI 5588 - A4*
	4	M0603103	*WASHER 8.4 U1751 DIN127 A4*
2	1	A94193700	KIT EL VT Motor Clutch
	1		*Connecting Coupling ø31.5*
	1		*Spring pin 5x40 DIN1481*
	1	S326490001	*Spring*
	1	S415030004	*Toothed coupling*

Pos.	Q.ty	Code	Description
	1	S415040080	*Bushing*
	1	S329360080	*Washer*
	1	M0666603	*Screw M6x16 UNI 5933*
3	1	G601070E	Electric motor 1.5 kW 12V
		G601060E	Electric motor 2kW 24V
		G603390E	Electric motor 2kW 48V
4	1	M6014206	Key DIN 6885 5x5x15
5	1	S717830052	Adaptation flange PAM90 B14 PAM71
6	4	M0666603	Screw M6x16 UNI 5933
7	4	M7745103	Socket head screw UNI 5931 M8x14 A4
8	1	S480730063	Sticker ISKRA motor
9	1	A93293700	KIT VT Gearbox (AS16F20.96)
	1		*Vertical WormBox 20.96 B5 B5 P71/63*
	1		*Sticker for gearbox*



A **Anti-seize**

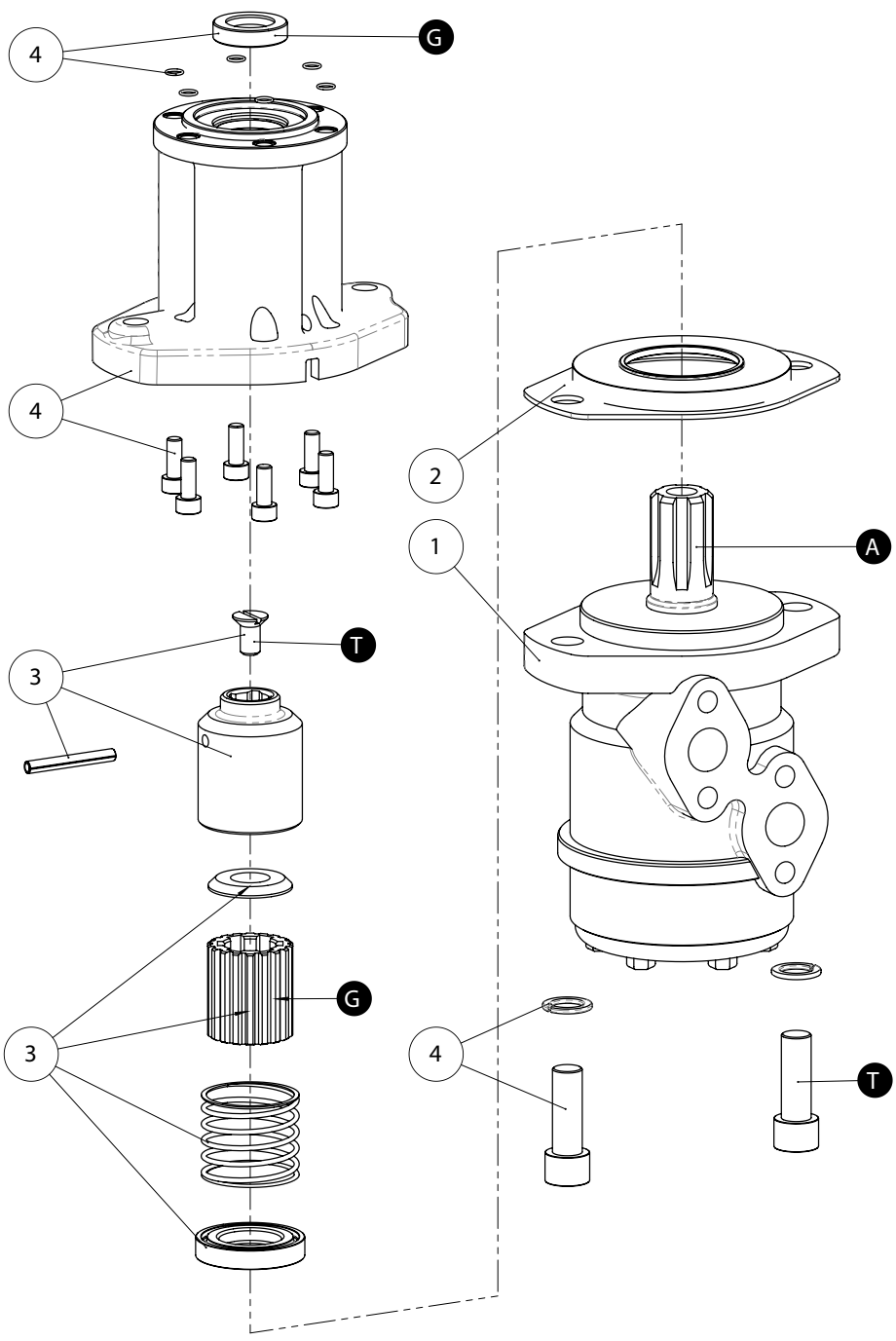
G **Harken® Grease**

T **Axial Threadlocker**

Hydraulic motor

Pos.	Q.ty	Code	Description
1	1	G045942000Y	Hydraulic motor W46-60
2	1	S415000080	Hydraulic Motor Spacer
3	1	A94193200	KIT Clutch HY Motor W46-70
			Toothed coupling
			Connecting Coupling Ø31.5
	1	M0620401	*Spring pin 5x40 DIN1481*
	1	S415010080	*Bushing*
	1	S326490001	*Spring*
	1	S329360082	*Washer*
	1	M0635303	*Screw M8x16 UNI6109*

Pos.	Q.ty	Code	Description
4	1	A94149100	Kit HY Motor flange
			Hydraulic Motorgear flange
	6	S415360003	*Screw M6x16 UNI EN ISO 5931*
	6	M6015697	*O-Ring seal Ø5,5xØ1*
	1	M6007297	*Lip seal Ø17xØ30x7*
	2	M0621503	*Washer Ø13 U1751 DIN127*
	2	M0667103	*Screw M12x35 UNI 5931*



A **Anti-seize**

G **Harken® Grease**

T **Axial Threadlocker**