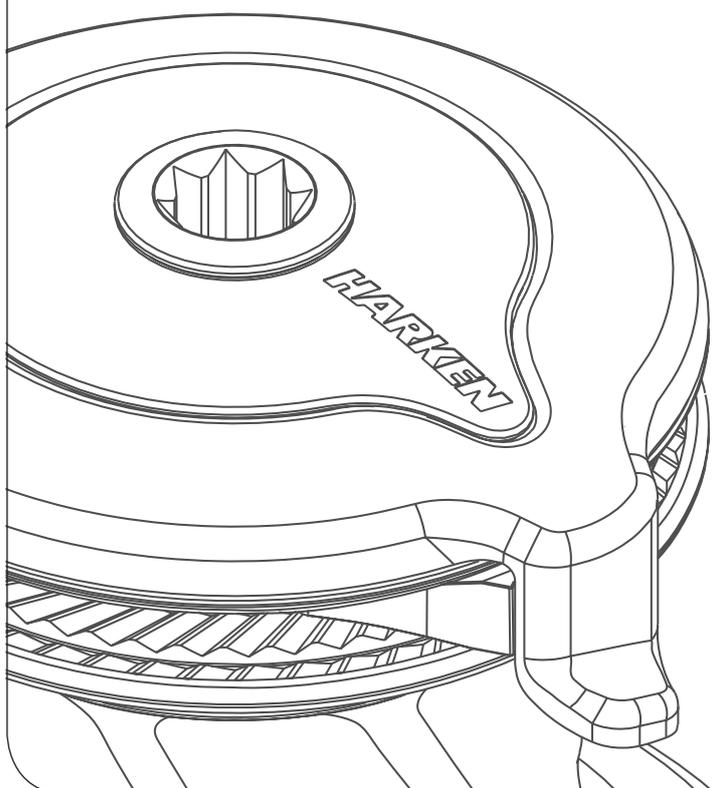


Installation and Maintenance Manual

MRW-03

Powered Radial Winch 46.2 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	11,70 : 1	2,30 : 1
2nd speed	46,50 : 1	9,17 : 1

The theoretical power ratio does not take friction into account.

Performance data

Winch 46.2 ST E (electric)

	horizontal motor				vertical motor			
	12 V (700 W)		24 V (900 W)		12 V (1500 W)		24 V (2000 W)	
	1st speed	2nd speed	1st speed	2nd speed	1st speed	2nd speed	1st speed	2nd speed
line speed (m/min)**	26,7	6,7	33,5	8,4	35,1	8,8	42,3	10,7
max load (Kg)	315	1300	315	1300	315	1300	315	1300

***Line speed is measured with no load*

winch 46.2 ST E		motor nominal power (W)		current absorption at winch MWL (A)	
		12 V	24 V	12 V	24 V
		horizontal	vertical	horizontal	vertical
	horizontal	700	900	180	140
	vertical	1500	2000	220	120

Winch 46.2 ST HY (hydraulic)

	1st speed	2nd speed
line speed (m/min)*	52,5	13,2
max load (Kg)***	315	1300

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

*** at 120 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)	14,9	17,5	16,7	19,3	12,7	15,3

	ST BBB EH	ST CCC EH	ST BBB EV	ST CCC EV	ST BBB H	ST CCC H
weight (Kg)	18,6	18,6	20,4	20,4	16,4	16,4

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



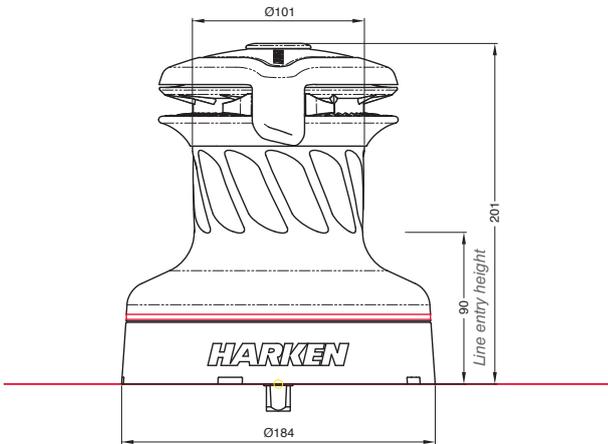
WARNING!

The maximum working load (MWL) for the 46.2 ST Radial Winch is 1300 Kg (2866 lb)

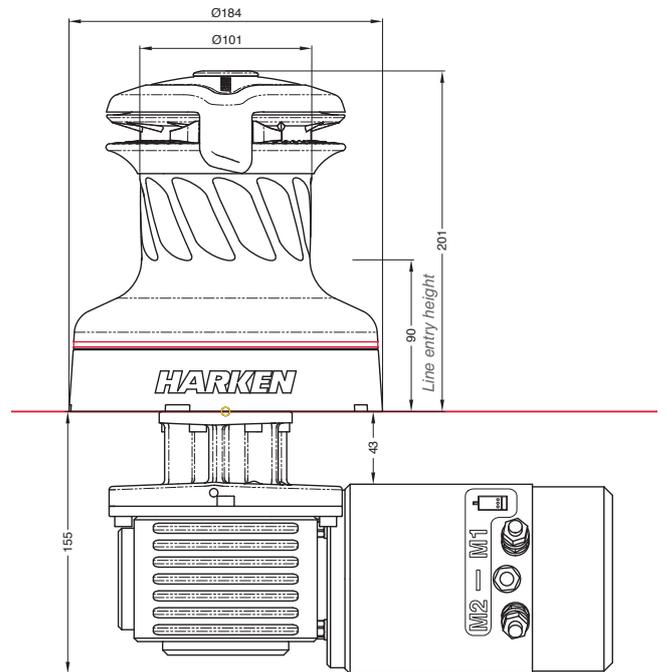
Subjecting the winch to loads above the maximum working load can cause the winch to fail or pull off the deck suddenly and unexpectedly during high loads causing severe injury or death.

Outline

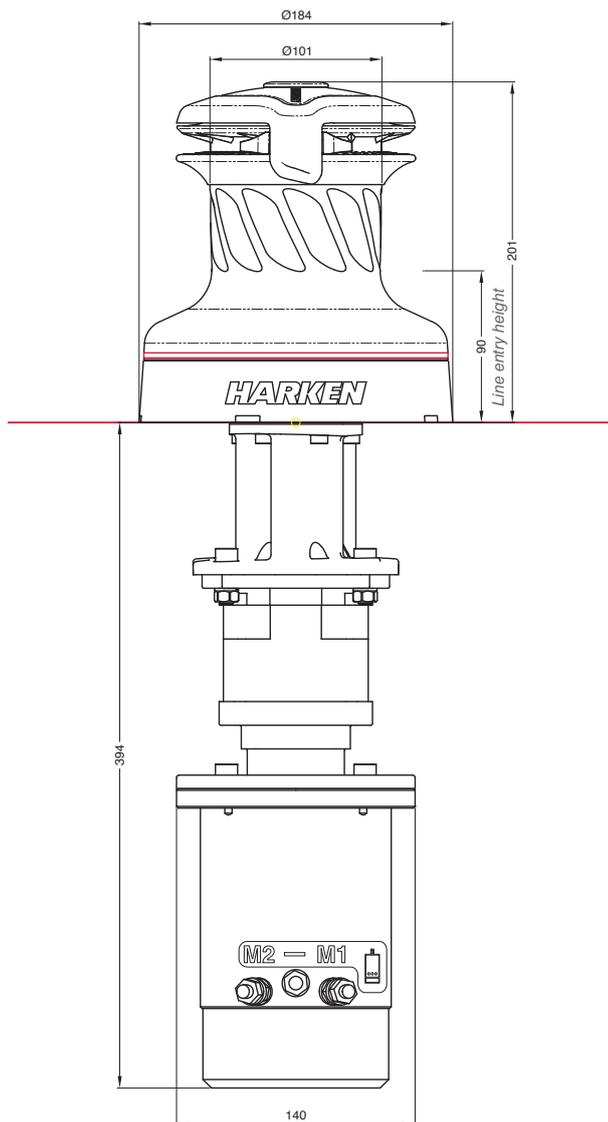
Winch 46.2 ST E/HY



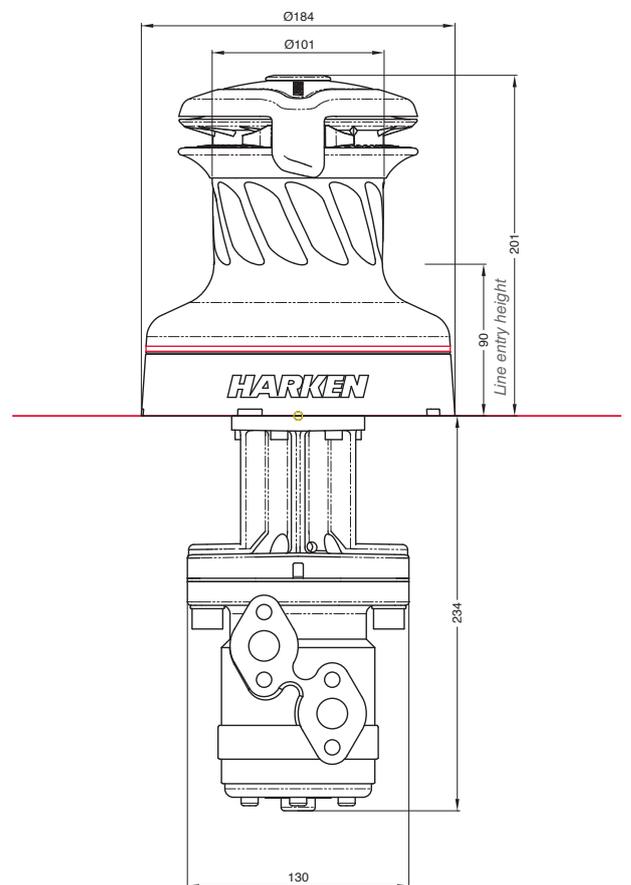
Horizontal electric motor (12 V / 24 V)



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.



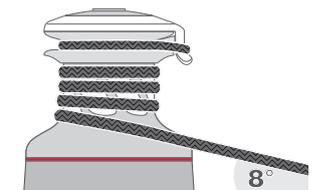
WARNING!

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.



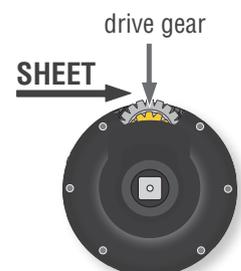
WARNING!

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.



NOTICE

For winch STA, STC and STCW versions only
You can find the icon ▲ on the skirt to identify the drive gear position.



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 different positions.

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.

The winch can be installed following one of the two procedures below (Procedure 1 or Procedure 2):

Procedure 1

To install the winch you must remove the drum and use bolts as described ahead.

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°21



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



3. Slide off the assy socket n°31 and the cover n°30.

Pay attention to the o-ring in the socket.



4. Unscrew the three screws n°29 ( 4Nm/35 in-lb)



5. Remove the self-tailing arm n°28 by rotating and lifting it.



6. Lift off the drum n°24

Winch STA, STC and STCW versions:

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.

Winch STBBB and STCCC versions:

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 or hexagonal headed bolts (HH).

Procedure 2 (not pertinent for ST BBB/CCC versions)

To install, you must remove the winch skirt and use hexagonal headed (HH) bolts.

Tools needed:  One medium flat-bladed screwdriver

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

See (paragraph on installation) the limits described on page 6 and using socket head (SH) bolts.

 Torque to apply when assembling



1. Remove the skirt n°2 with the help of the screwdriver placed as shown by the symbol 



2. Take off the base n°2



3. Position the 5 M8 hexagonal headed bolts in their holes



4. Reposition the skirt n°2 in its housing



5. Press down the skirt to position it correctly

NOTICE

Make sure the skirt is correctly clipped on to the base of the winch.

Install the winch on the deck in the position you have chosen, keeping in mind the limits described on page 6 and using hexagonal headed (HH) bolts.
(See paragraph on winch installation)

Winch installation procedure

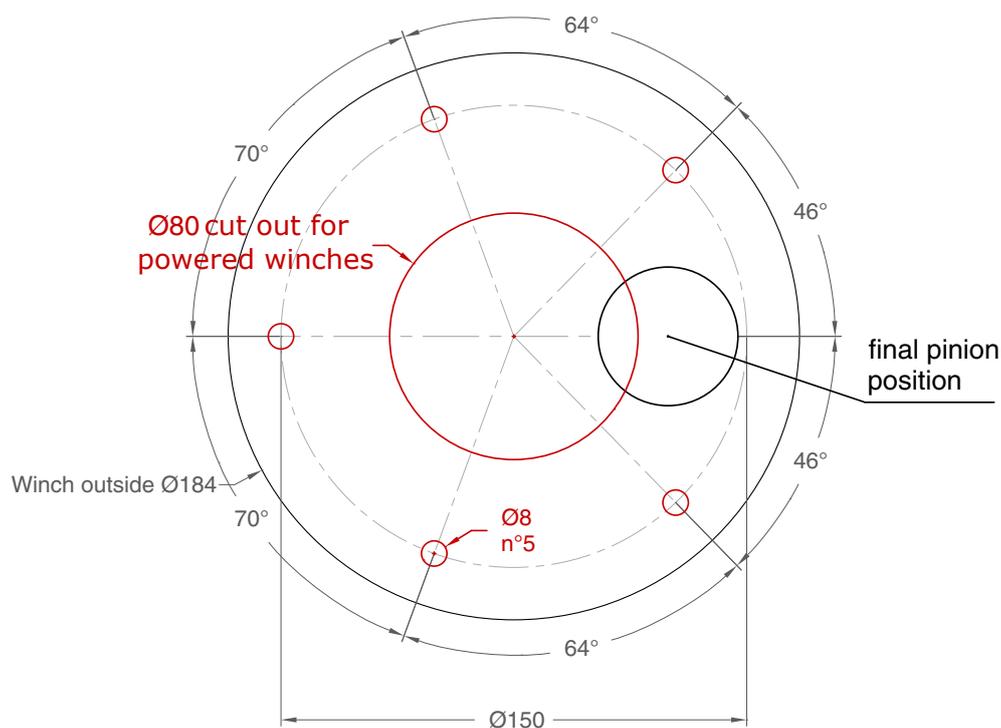
Carry out **Procedure 1** or **Procedure 2**, then install the winch on the deck in the chosen position.

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 five 8.2 mm and a 80 mm diameter holes.

C. Bolt the base of the winch to the deck using five M8 bolts (not supplied by Harken®) as described at Procedure 1 or Procedure 2, 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 **Procedure 1** or **Procedure 2** 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

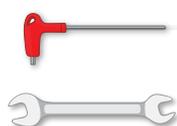
Position the self-tailing arm so that the line leaving the winch is led into the cockpit.

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.



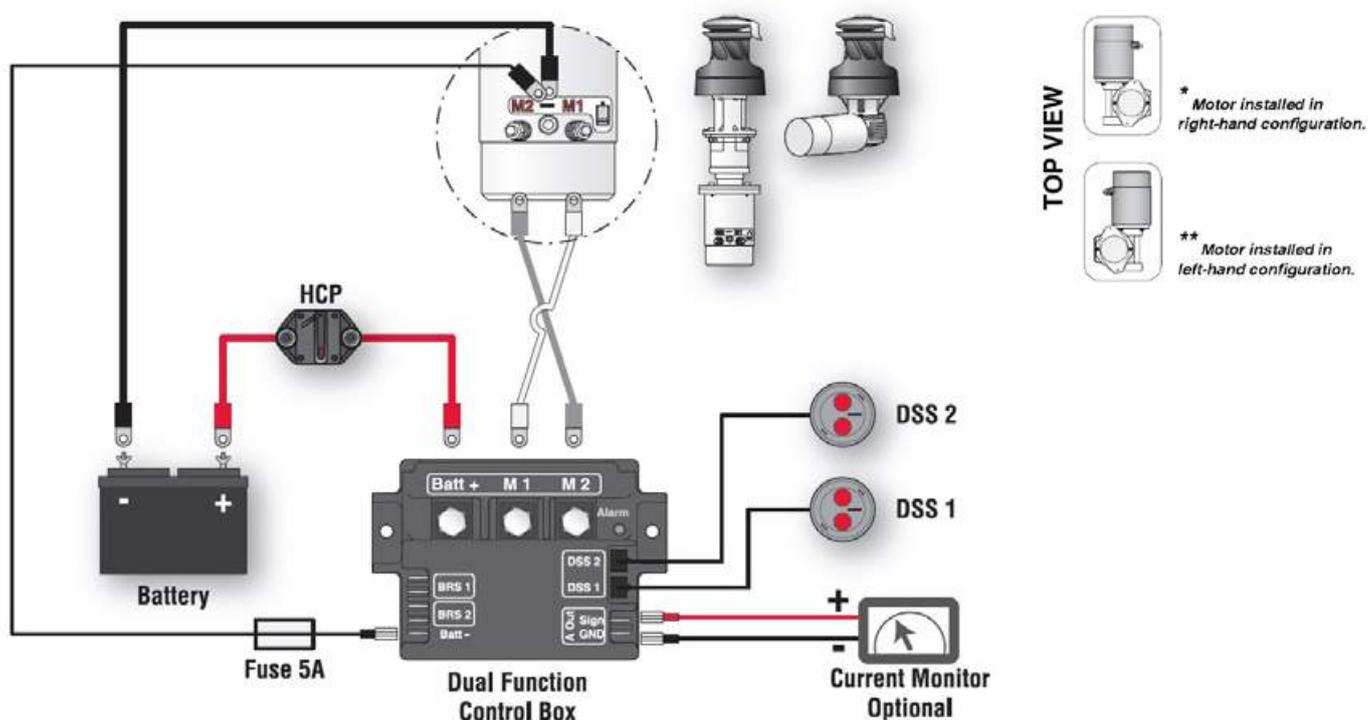
After winch is assembled and before sailing, test the powered winch functioning: insert the lock-in winch handle in the handle socket and check that the disconnect rod must disconnect gearbox.

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
46.2	12 V	2	32	0	50	00	70	000	95
46.2	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

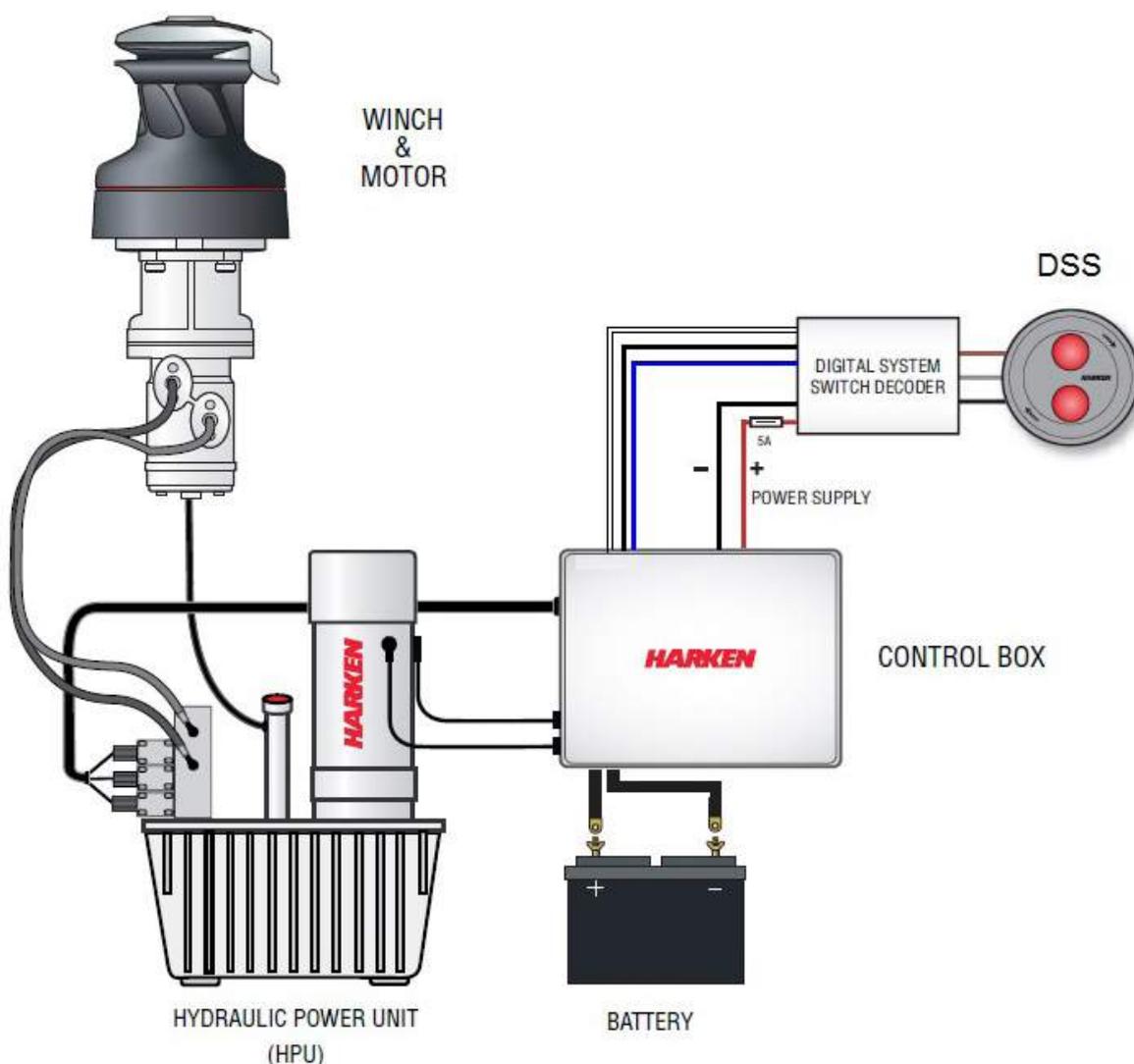
The hydraulic motor must be connected to a hydraulic system using two high-pressure tubes which serve for input or output according to the direction in which the motor will be run. The motor also needs a third connection with a low pressure tube for drainage, so that excess oil can return to the main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



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 five hex key
-  Brush
-  Rags

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 **Procedure 1** as shown in the paragraph on winch installation and then do the following:



6. Completely unscrew the three screws n° 29 and remove the stripper arm support n°23



7. Slide out the central shaft n°20



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



9. Remove the assy housing n°16
Important: washer n°13 may remain inside the drum support!



10. Remove the washer n°13



11. Remove the gear n°10



12. Remove the pawls carrier n°7



13. Remove the gear n°3



14. Remove the gear n°15



15. Remove the gear n°6



16. Remove the pawls carrier n°11



18. Remove the washer n°5

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



I. Unscrew the 4 screws n°27
($\approx 4\text{Nm}/35\text{ in-lb}$)



II. Remove the jaws n°26

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.

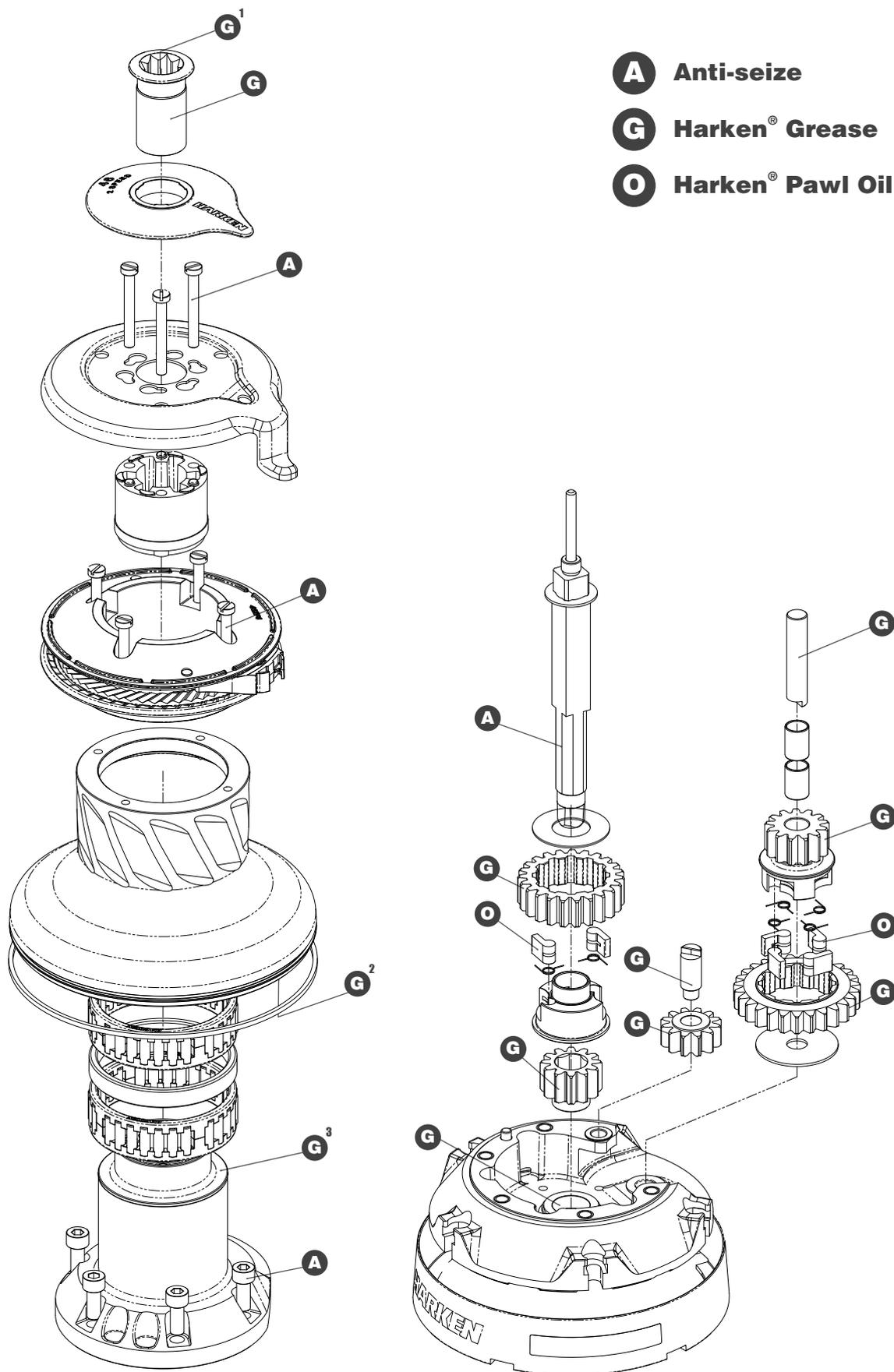
Carry out maintenance on components using the products listed below.

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 -
 3. Apply Harken® grease on the middle step of assy housing

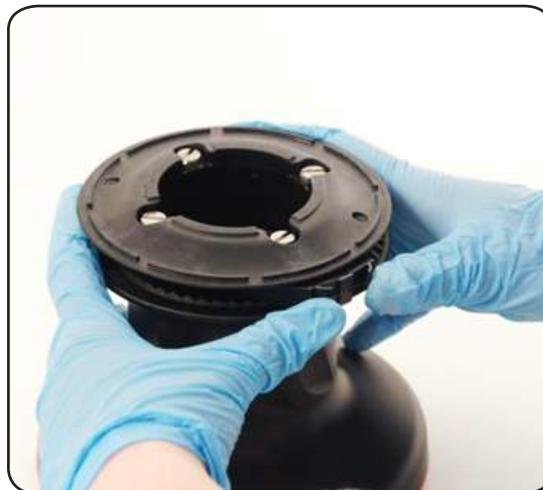
Assembly

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.

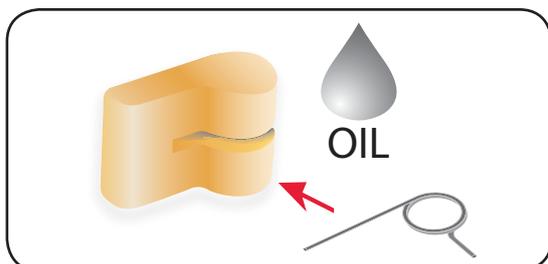
To tighten bolts, use the torque indicated in the disassembly procedure.



When positioning the stripper arm, align the peeler with it.

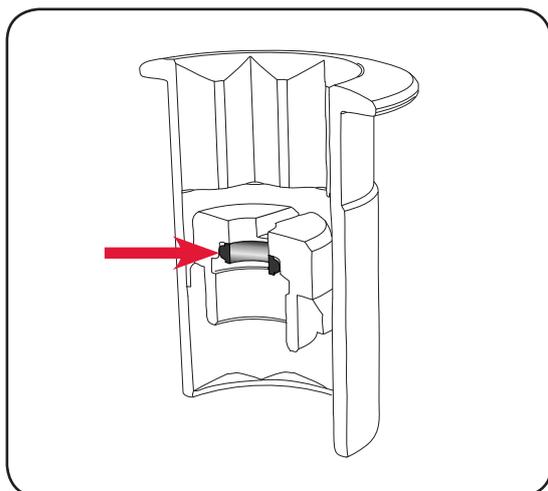


If the jaws have been disassembled, insert peeler between the two jaws, taking care that the letters TOP on the peeler are facing upwards.



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.



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.

**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

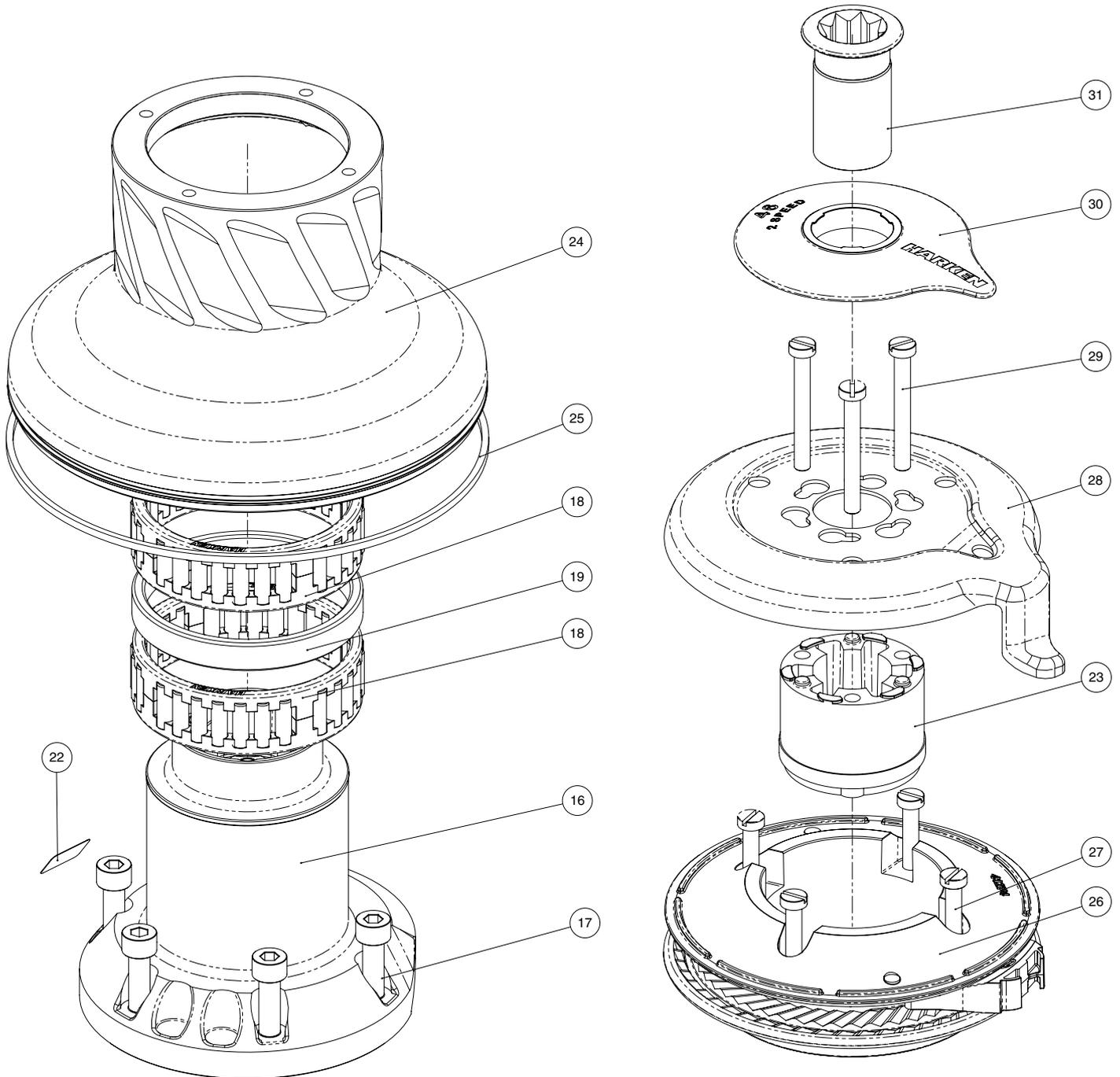
Headquarters***Harken®, Inc.***

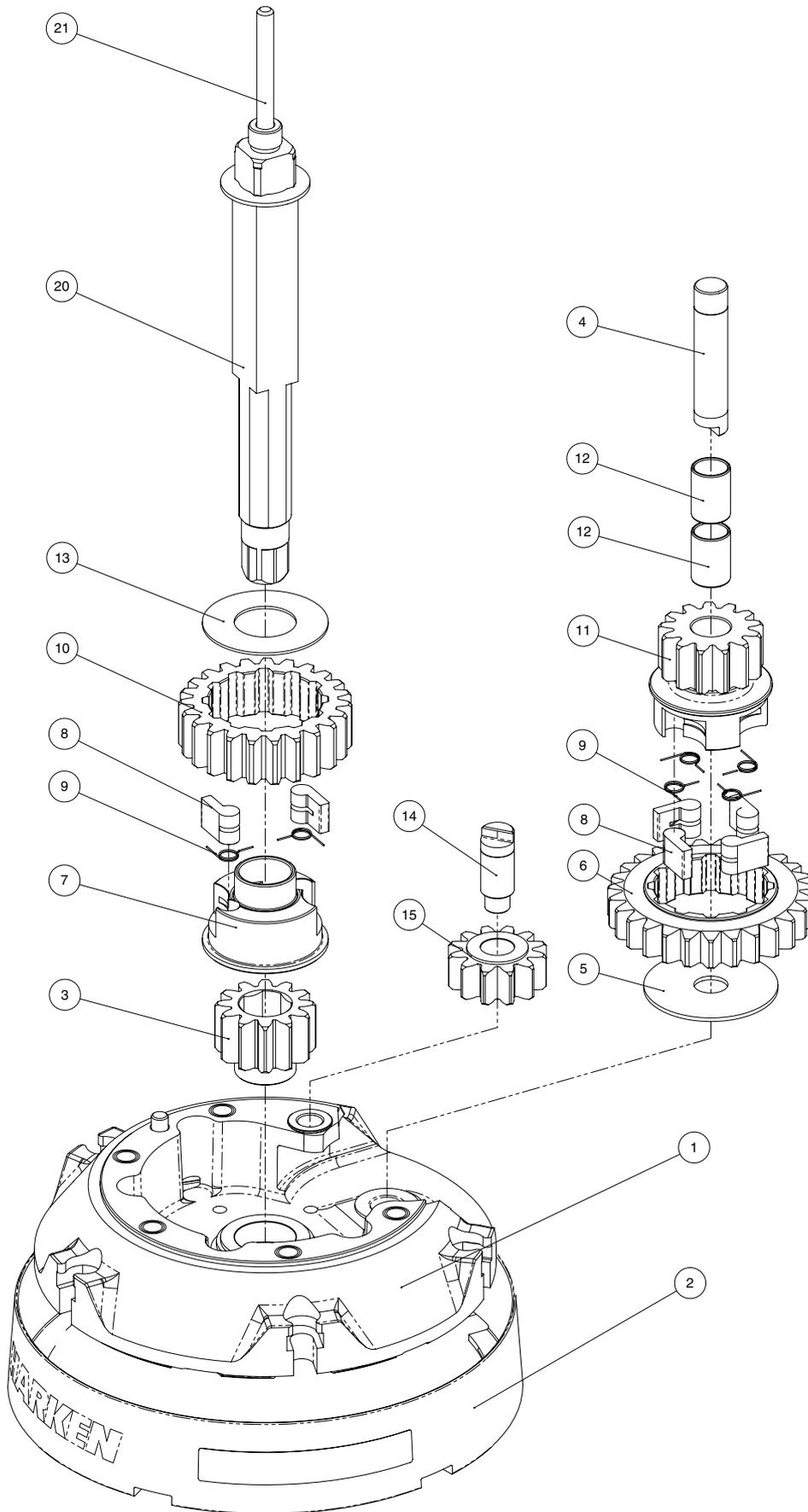
1251 East Wisconsin Avenue
Pewaukee, Wisconsin 53072-3755 USA
Tel: (262) 691.3320
Fax: (262) 691.3008
Email: harken@harken.com
Web: www.harken.com

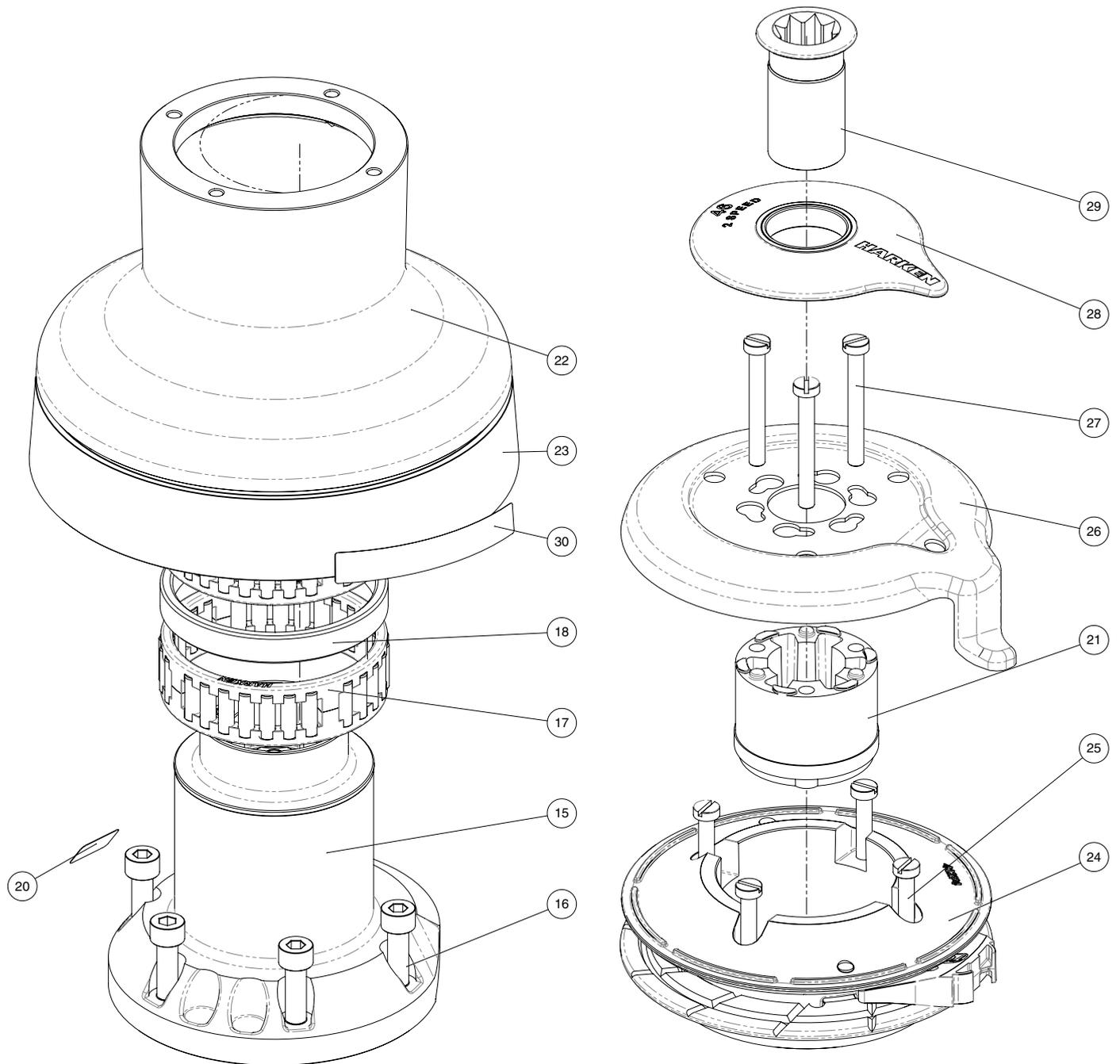
- **Tech Service**
Email: technicalservice@harken.com
- **Customer Service**
Tel: (262) 691-3320
Email: customerservice@harken.com

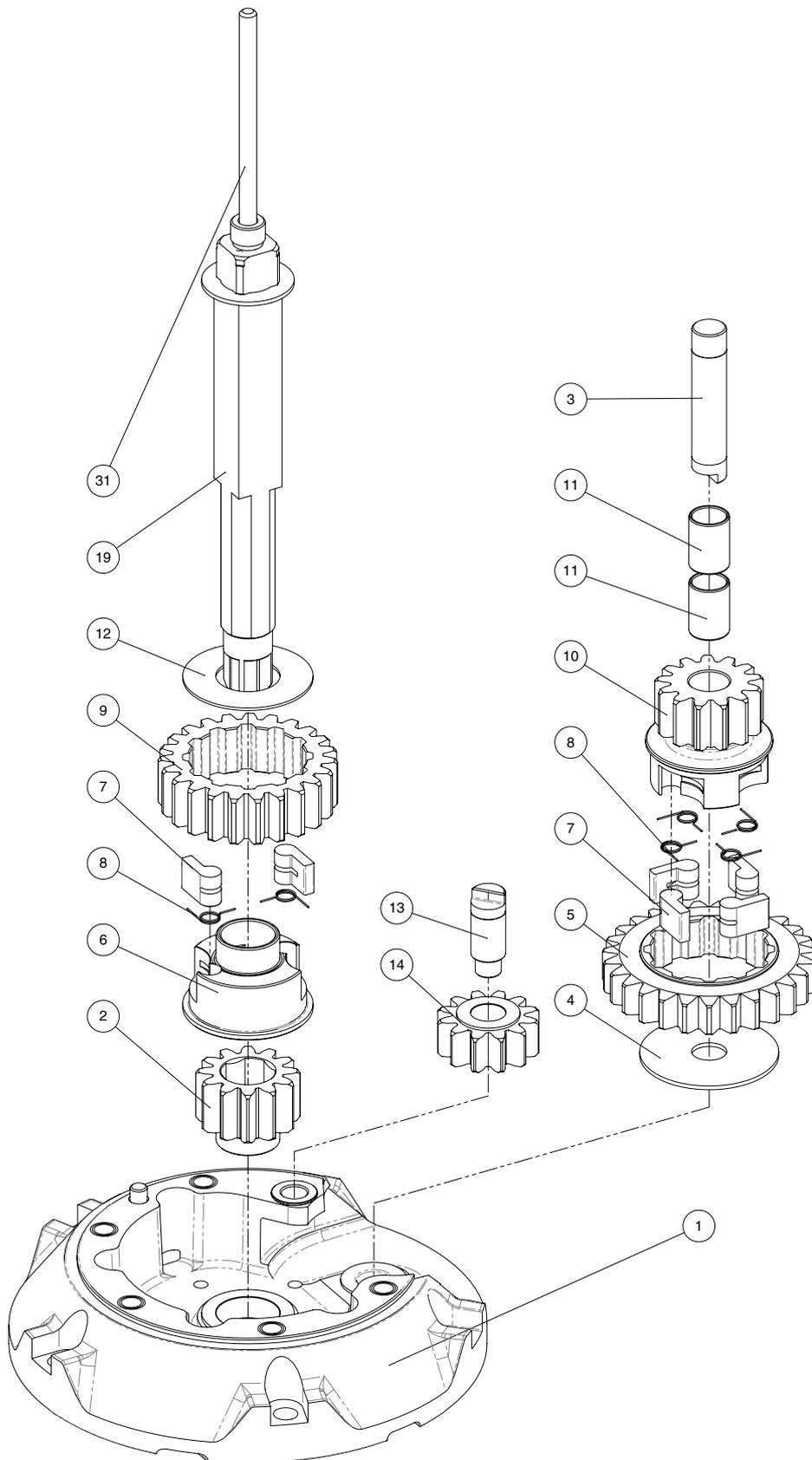
Exploded view

Radial Winch 46.2 STA, STC, STCW



Radial Winch 46.2 STA, STC, STCW

Radial Winch 46.2 STBBB, STCCC

Radial Winch 46.2 STBBB, STCCC

Parts List

Radial Winch 46.2 STA

A = drum in anodised aluminium

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description			
1	1	A94189700	Assy Base Winch 46 EL/HY Base W46 Heli-coil M8x10	18	2	A74133700	Bearing Ø75xØ87x26			
	1	S413350080	Roller Ø6x19	19	1	S413390080	Spacer			
	1	S4130900A7	Bushing Ø22xØ25x8.5	20	1	A94161000	Assy Central Shaft W46 EL/HY Central Shaft W46 EL/HY			
	1	S414890080	Bushing Ø9xØ11x7	1	1	S413880002	Washer Ø17.2xØ32x1.5			
	1	S413330085	Bushing Ø12xØ14x11	21	1	S416110002	Disconnect Rod W46			
2	1	A94132300	Assy Skirt Winch 46 Skirt W46 Winch Product Sticker**	22			Winch Serial Number Sticker			
				23	1	S4129400A0	Stripper arm support			
3	1	S413020004	Gear Z12	24	1	S412720053	Drum W46			
4	1	S413300004	Pin Ø12x60	25	1	S281690097	Red line			
5	1	S278170002	Washer Ø12.5xØ48x1.5	26	1	A94127300	Assy Jaws winch 46 Lower Jaw W46 Upper Jaw W46			
6	1	S413260004	Gear Z27	1	4	S414280080 S385970001	Peeler W46 - 50 SPRING			
7	1	S414260004	Pawls Carrier Ø8xN2				27	4	M0601803	Screw UNI EN ISO 1207:1996 - M6x35 - A4
8	6	S000080003	Pawl Ø8*	28	1	S413380019	Stripper Arm W46			
9	6	S000380001	Pawl Spring Ø8*	29	3	M6007103	Screw M6x50 UNI6107			
10	1	S412830041	Gear Z23	30	1	S4127000A5	Cover 2 speed W46			
11	1	S413250041	Pinion Z13	31	1	A94149300	Assy Socket W35-80 EL/HY Socket Handle W20/80			
12	2	M6017694	IGUS Bushing PSM-1214-20				1	1	S414940085	Washer Ø25xØ15x4
13	1	S413120002	Washer Ø22.5xØ45x1				1	1	S414930003	Nut Screw for Disconnect Rod
14	1	S413070004	Pin Ø9xØ12x32.5	1	1	M0679797	O ring RC 2025 series			
				15	1	A94133400	Assy Gear Z12 Gear Z12			
16	1	A94132200	Assy Housing Winch 46 Housing Winch 46 Heli-coil M6x9	2	2	S414900080	Bushing Ø12xØ14x8			
				1	1	S413330085	Bushing Ø12xØ14x11			
				1	1	S4133200B3	Bushing for support			
				17	5	M0606303	Screw M8x25 UNI 5931			

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

**Winch product sticker



Radial Winch 46.2 STC

C = drum in chrome bronze

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description
1	1	A94189700	Assy Base Winch 46 EL/HY Base W46 Heli-coil M8x10	18	2	A74133700	Bearing Ø75xØ87x26
	1	S413350080	Roller Ø6x19	19	1	S413390080	Spacer
	1	S4130900A7	Bushing Ø22xØ25x8.5	20	1	A94161000	Assy Central Shaft W46 EL/HY Central Shaft W46 EL/HY
	1	S414890080	Bushing Ø9xØ11x7	1	1	S413880002	Washer Ø17.2xØ32x1.5
	1	S413330085	Bushing Ø12xØ14x11	21	1	S416110002	Disconnect Rod W46
2	1	A94132300	Assy Skirt Winch 46 Skirt W46 Winch Product Sticker**	22			Winch Serial Number Sticker
				23	1	S4129400A0	Stripper arm support
3	1	S413020004	Gear Z12	24	1	S413240043	Drum W46 C
4	1	S413300004	Pin Ø12x60	25	1	S281690097	Red line
5	1	S278170002	Washer Ø12.5xØ48x1.5	26	1	A94127300	Assy Jaws winch 46 Lower Jaw W46 Upper Jaw W46 Peeler W46 - 50 SPRING
6	1	S413260004	Gear Z27	27	1	S414280080	Screw UNI EN ISO 1207:1996 - M6x35 - A4
7	1	S414260004	Pawls Carrier Ø8xN2		4	S385970001	
8	6	S000080003	Pawl Ø8*	28	1	S413380019	Stripper Arm W46
9	6	S000380001	Pawl Spring Ø8*	29	3	M6007103	Screw M6x50 UNI6107
10	1	S412830041	Gear Z23	30	1	S4127000A5	Cover 2 speed W46
11	1	S413250041	Pinion Z13	31	1	A94149300	Assy Socket W35-80 EL/HY Socket Handle W20/80 Washer Ø25xØ15x4 Nut Screw for Disconnect Rod O ring RC 2025 series
12	2	M6017694	IGUS Bushing PSM-1214-20		1	S414940085	
13	1	S413120002	Washer Ø22.5xØ45x1		1	S414930003	
14	1	S413070004	Pin Ø9xØ12x32.5	1	M0679797		
				1			
15	1	A94133400	Assy Gear Z12 Gear Z12				
	2	S414900080	Bushing Ø12xØ14x8				
16	1	A94132200	Assy Housing Winch 46 Housing Winch 46 Heli-coil M6x9				
	1	S414900080	Bushing Ø12xØ14x8				
	1	S413330085	Bushing Ø12xØ14x11				
	1	S4133200B3	Bushing for support				
17	5	M0606303	Screw M8x25 UNI 5931				

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

**Winch product sticker



Radial Winch 46.2 STCW

CW = chrome/white

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description	
1	1	A94132100	Assy Base Winch 46 EL/HY Base W46 Heli-coil M8x10	18	2	A74133700	Bearing Ø75xØ87x26	
	1	S413350080	Roller Ø6x19	19	1	S413390080	Spacer	
	1	S4130900A7	Bushing Ø22xØ25x8.5	20	1	A94161000	Assy Central Shaft W46 EL/HY Central Shaft W46 EL/HY	
	1	S414890080	Bushing Ø9xØ11x7		1	S413880002	Washer Ø17.2xØ32x1.5	
	1	S413330085	Bushing Ø12xØ14x11	21	1	S416110002	Disconnect Rod W46	
2	1	A94132300W	Assy Skirt Winch 46 RAL 9003 Skirt W46 RAL9003 Winch Product Sticker**	22			Winch Serial Number Sticker	
				23	1	S4129400A0	Stripper arm support	
3	1	S413020004	Gear Z12	24	1	S413240043	Drum C W46	
4	1	S413300004	Pin Ø12x60	25	1	S281690097	Red line	
5	1	S278170002	Washer Ø12.5xØ48x1.5	26	1	A94127300W	Assy Jaws winch 46 Lower Jaw W46 RAL9003 Upper Jaw W46 RAL9003 Peeler W46 - 50 RAL9003 SPRING	
6	1	S413260004	Gear Z27		1	S414280080W		
7	1	S414260004	Pawls Carrier Ø8xN2		4	S385970001		
8	6	S000080003	Pawl Ø8*		27	4	M0601803	Screw UNI EN ISO 1207:1996 - M6x35 - A4
9	6	S000380001	Pawl Spring Ø8*			28	1	S413380019
10	1	S412830041	Gear Z23	29	3	M6007103	Screw M6x50 UNI6107	
11	1	S413250041	Pinion Z13	30	1	S4127000A5W	Cover 2 speed W46 RAL9003	
12	2	M6017694	IGUS Bushing PSM-1214-20	31	1	A94149300	Assy Socket W35-80 EL/HY Socket Handle W20/80 Washer Ø25xØ15x4 Nut Screw for Disconnect Rod O ring RC 2025 series	
13	1	S413120002	Washer Ø22.5xØ45x1		1	S414940085		
14	1	S413070004	Pin Ø9xØ12x32.5		1	S414930003		
	1	A94133400	Assy Gear Z12 Gear Z12 Bushing Ø12xØ14x8		1	M0679797		
16	1	A94132200	Assy Housing Winch 46 Housing Winch 46 Heli-coil M6x9					
	1	S414900080	Bushing Ø12xØ14x8					
	1	S413330085	Bushing Ø12xØ14x11					
	1	S4133200B3	Bushing for support					
17	5	M0606303	Screw M8x25 UNI 5931					

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

**Winch product sticker



Radial Winch 46.2 STBBB

BBB = all bronze

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description
1	1	A96633900	PERFORMA Assy Base Winch 46 EL/HY	18	1	S413390080	Spacer
			<i>PERFORMA Base W46</i>	19	1	A94161000	Assy Central Shaft W46 EL/HY
			<i>Heli-coil M8x10</i>		1	S413880002	<i>Central Shaft W46 EL/HY</i>
	1	S413350080	<i>Roller Ø6x19</i>				<i>Washer Ø17.2xØ32x1.5</i>
	1	S4130900A7	<i>Bushing Ø22xØ25x8.5</i>	20			Winch Serial Number Sticker
	1	S414890080	<i>Bushing Ø9xØ11x7</i>	21	1	S4129400A0	Stripper arm support
	1	S413330085	<i>Bushing Ø12xØ14x11</i>	22	1	S688150043	Drum W46 BBB
2	1	S413020004	Gear Z12	23	1	S281690097	Red line
3	1	S413300004	Pin Ø12x60	24	1	A96933000	Assy Jaws winch 46 BBB
4	1	S278170002	Washer Ø12.5xØ48x1.5				<i>Lower Jaw W46 BBB</i>
5	1	S413260004	Gear Z27				<i>Upper Jaw W46</i>
6	1	S414260004	Pawls Carrier Ø8xN2		1	S414280080	<i>Peeler W46 - 50</i>
7	6	S000080003	Pawl Ø8*	4	S385970001		<i>SPRING</i>
8	6	S000380001	Pawl Spring Ø8*	25	4	M0601803	Screw UNI EN ISO 1207:1996 - M6x35 - A4
9	1	S412830041	Gear Z23	26	1	S693290019	Stripper Arm W46 BBB
10	1	S413250041	Pinion Z13	27	3	M6007103	Screw M6x50 UNI6107
11	2	M6017694	IGUS Bushing PSM-1214-20	28	1	A76933100	Cover W46 ST BBB
12	1	S413120002	Washer Ø22.5xØ45x1	29	1	A94149300	Assy Socket W35-80 EL/HY
13	1	S413070004	Pin Ø9xØ12x32.5		1	S414940085	<i>Socket Handle W20/80</i>
14	1	A94133400	Assy Gear Z12		1	S414930003	<i>Washer Ø25xØ15x4</i>
			<i>Gear Z12</i>		1	M0679797	<i>Nut Screw for Disconnect Rod</i>
	2	S414900080	<i>Bushing Ø12xØ14x8</i>		1		<i>O ring RC 2025 series</i>
15	1	A94132200	Assy Housing Winch 46	30			Winch Product Sticker**
			<i>Housing Winch 46</i>	31	1	S416110002	Disconnect Rod W46
			<i>Heli-coil M6x9</i>				
	1	S414900080	<i>Bushing Ø12xØ14x8</i>				
	1	S413330085	<i>Bushing Ø12xØ14x11</i>				
	1	S4133200B3	<i>Bushing for support</i>				
16	5	M0606303	Screw M8x25 UNI 5931				
17	2	A74133700	Bearing Ø75xØ87x26				

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

**Winch product sticker



Radial Winch 46.2 STCCC

CCC = All-Chrome bronze

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description
1	1	A96633900	PERFORMA Assy Base Winch 46 EL/HY	18	1	S413390080	Spacer
			<i>PERFORMA Base W46</i>	19	1	A94161000	Assy Central Shaft W46 EL/HY
			<i>Heli-coil M8x10</i>		1	S413880002	<i>Central Shaft W46 EL/HY</i>
	1	S413350080	<i>Roller Ø6x19</i>				<i>Washer Ø17.2xØ32x1.5</i>
	1	S4130900A7	<i>Bushing Ø22xØ25x8.5</i>	20			Winch Serial Number Sticker
	1	S414890080	<i>Bushing Ø9xØ11x7</i>	21	1	S4129400A0	Stripper arm support
	1	S413330085	<i>Bushing Ø12xØ14x11</i>	22	1	S681060043	Drum CCC W46
2	1	S413020004	Gear Z12	23	1	S281690097	Red line
3	1	S413300004	Pin Ø12x60	24	1	A96812000	Assy Jaws winch 46 CCC
4	1	S278170002	Washer Ø12.5xØ48x1.5				<i>Lower Jaw W46 CCC</i>
5	1	S413260004	Gear Z27				<i>Upper Jaw W46 RAL9003</i>
6	1	S414260004	Pawls Carrier Ø8xN2		1	S414280080W	<i>Peeler W46 - 50 RAL9003</i>
7	6	S000080003	Pawl Ø8*	4	S385970001		<i>SPRING</i>
8	6	S000380001	Pawl Spring Ø8*	25	4	M0601803	Screw UNI EN ISO 1207:1996 - M6x35 - A4
9	1	S412830041	Gear Z23	26	1	S413380019	Stripper Arm W46
10	1	S413250041	Pinion Z13	27	3	M6007103	Screw M6x50 UNI6107
11	2	M6017694	IGUS Bushing PSM-1214-20	28	1	A76811300	Cover 2 speed W46 CCC
12	1	S413120002	Washer Ø22.5xØ45x1	29	1	A94149300	Assy Socket W35-80 EL/HY
13	1	S413070004	Pin Ø9xØ12x32.5		1	S414940085	<i>Socket Handle W20/80</i>
14	1	A94133400	Assy Gear Z12		1	S414930003	<i>Washer Ø25xØ15x4</i>
			<i>Gear Z12</i>		1	M0679797	<i>Nut Screw for Disconnect Rod</i>
	2	S414900080	<i>Bushing Ø12xØ14x8</i>		1		<i>O ring RC 2025 series</i>
15	1	A94132200	Assy Housing Winch 46	30			Winch Product Sticker**
			<i>Housing Winch 46</i>	31	1	S416110002	Disconnect Rod W46
			<i>Heli-coil M6x9</i>				
	1	S414900080	<i>Bushing Ø12xØ14x8</i>				
	1	S413330085	<i>Bushing Ø12xØ14x11</i>				
	1	S4133200B3	<i>Bushing for support</i>				
16	5	M0606303	Screw M8x25 UNI 5931				
17	2	A74133700	Bearing Ø75xØ87x26				

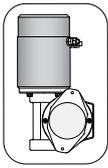
*Available with service kit; see website www.harken.com

**Winch product sticker

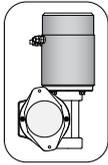


Horizontal electric motor 12V/24V

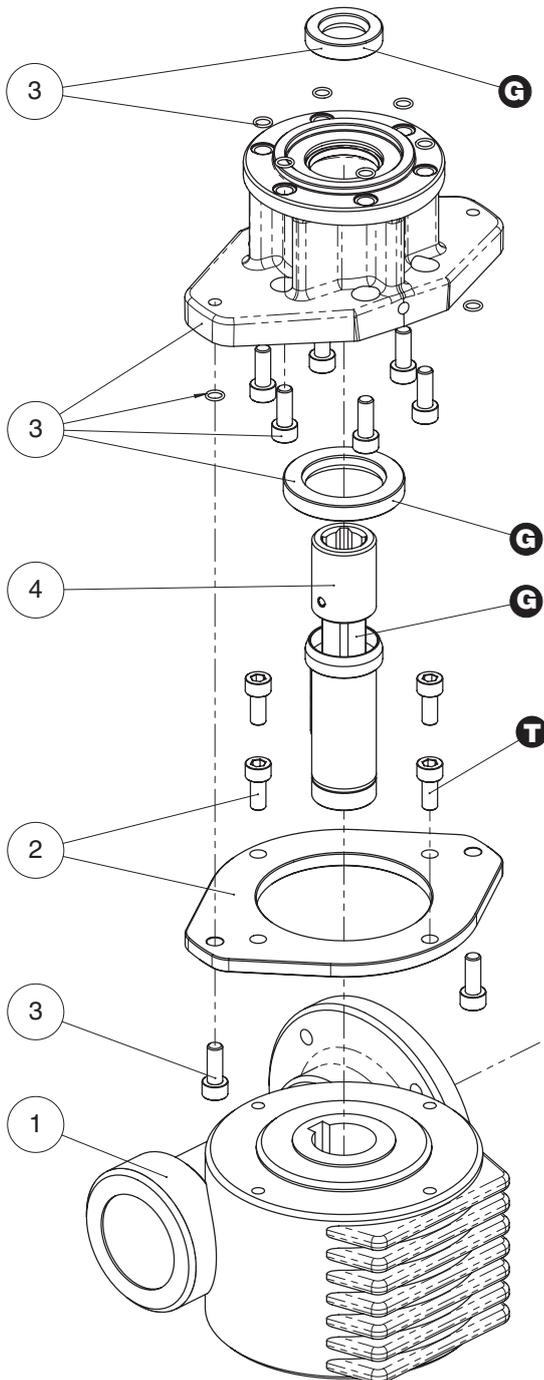
TOP VIEW



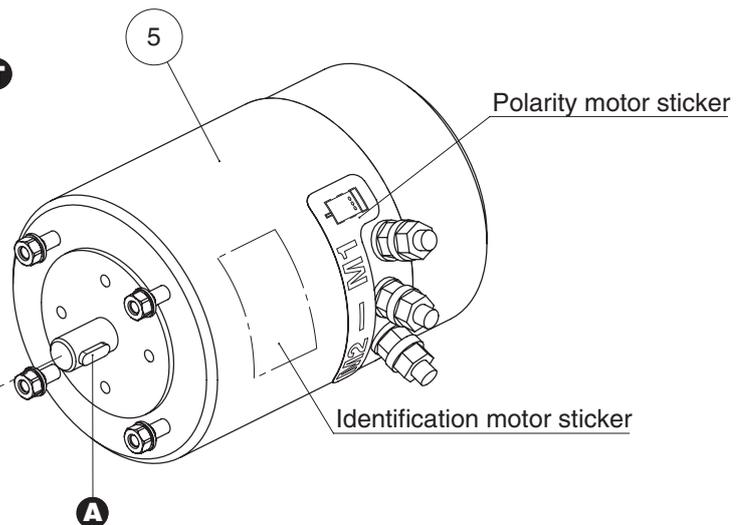
* **Motor installed in right-hand configuration.**



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



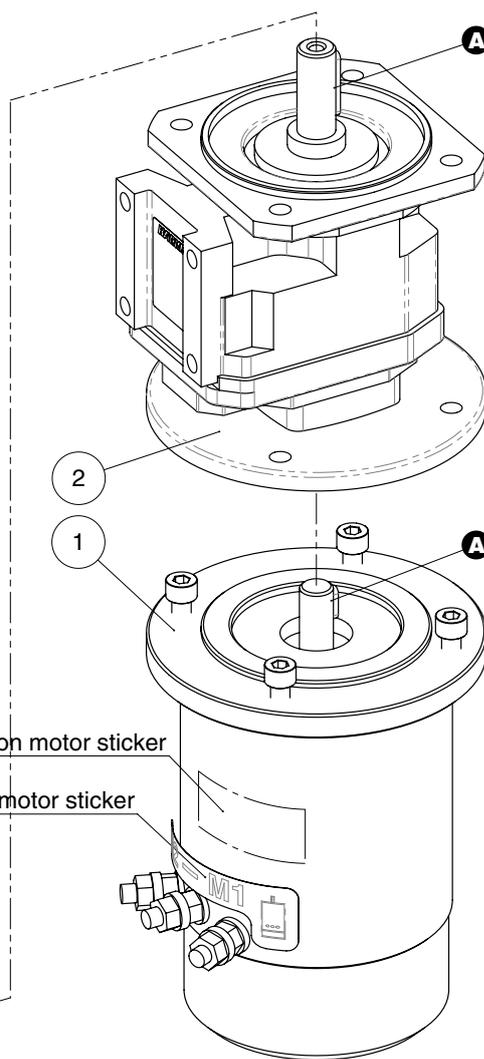
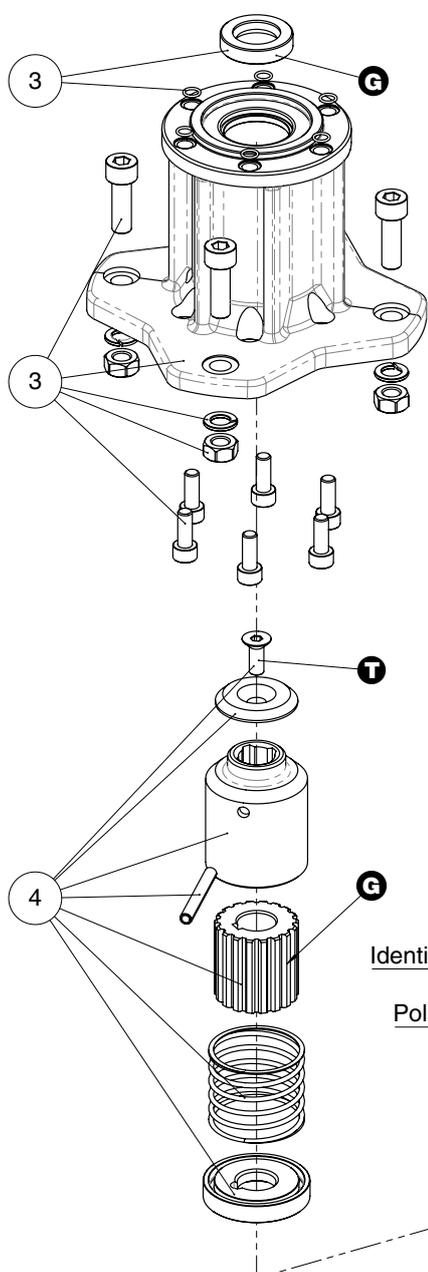
Pos.	Q.ty	Code	Description
1	1	A93127900	KIT Gear Reduction 1/24
	1	A94194900	KIT LM Gear Reduction 1/24
2	1	A94149200	KIT Assy Electric Motor Flange
	1	A94149200L	KIT Assy Electric Motor Flange Left
	4	M0606803	Electric Motor Flange Screw M6x14 UNI 5931
	3	A94149500	KIT EL HO Motor Flange
3	8	S415360003	Horizontal Motorgear Flange Screw M6x16 UNI EN ISO 5931:2003 precote coating
	8	M601560097	O-Ring Seal ORM 0055-10 (Ø5,5 x Ø1)
	1	M6007297	Lip seal Ø17xØ30x7
	1	M0612097	Sealer Ø30xØ47x7
4	1	A94161600	KIT EL HO Motor Clutch
			Shaft Motorgear HO
			Shaft GearMotor HO
			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	
5	1	A96015400	KIT EL Motor 12V 0,7kW
	1	A96015700	KIT EL Motor 24V 0,9kW
			Electric Motor
			Polarity motor sticker
			Screw stud M6x26
			Washer Ø6
			Nut M6 UNI5588
1	M6014206	Key DIN 6885 5x5x15	



- 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 <i>Vertical Motorgear Flange</i>
	1	A96010400	KIT EL Motor 24V 2kW VT <i>Electric Motor</i>				
			<i>Polarity motor sticker</i>				
			<i>Screw M8x20 UNI5931</i>				
	1	M6014206	<i>Key DIN 6885 5x5x15</i>	4		M0602903	<i>NUT M8 - UNI 5588 - A4</i>
				4		M0603103	<i>WASHER 8.4 U1751 DIN127 A4</i>
				1		M6007297	<i>Lip seal Ø17xØ30x7</i>
2	1	A96562900	Vertical reduction gear box 1/21.3	6		M6015697	<i>O-Ring Seal ORM 0055-10 (Ø5,5 x Ø1)</i>
				6		S415360003	<i>Screw M6x16 UNI EN ISO 5931:2003 precote coating</i>
				4		M0606303	<i>Screw M8x25 UNI 5931</i>
				4	1	A94193700	KIT EL VT Motor Clutch <i>Connecting Coupling Ø31.5</i> <i>Toothed coupling</i>
				1		M0620401	<i>Spring pin 5x40 DIN1481</i>
				1		S326490001	<i>Spring</i>
				1		S415040080	<i>Bushing</i>
				1		S329360082	<i>Washer</i>
				1		M0666603	<i>Screw M6x16 UNI 5933</i>



Identification motor sticker

Polarity motor sticker

- 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	1	S415360003	Hydraulic Motorgear Flange Screw M6x16 UNI EN ISO 5931:2003 precote coating
3	1	A94193200	KIT Clutch HY Motor W46-70	6	1	M6015697	O-Ring Seal ORM 0055-10 (Ø5,5 x Ø1)
			Toothed coupling	6	1	M6007297	Lip seal Ø17xØ30x7
	1	M0620401	Connecting Coupling Ø31.5	1	1	M0621503	Washer D.13 U1751 DIN127
	1	S415010080	Spring pin 5x40 DIN1481	2	1	M0667103	Screw M12x35 UNI5931
	1	S326490001	Bushing				
	1	S329360082	Spring				
	1	M0635303	Washer				
	1		Screw M8x16 UNI6109				

