

Installation and Maintenance Manual

MRPW-F

Performa™ Winch

46.2 STP
46.2 STQP



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 | 9,20 : 1 |

The theoretical power ratio does not take friction into account.

Weight

| | ST Version |
|-------------|------------|
| Weight (Kg) | 5,2 |

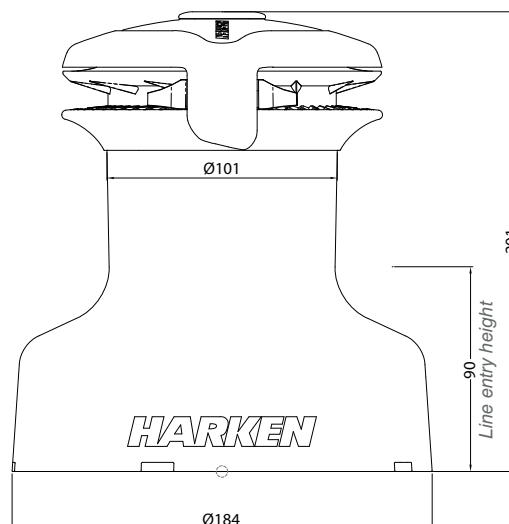
Maximum working load



WARNING!

The maximum working load (MWL) for the 46.2 ST Performa™ Winch is 1300Kg (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



Technical characteristics - Winch Quattro Performa

Dual Drum Winch: upper drum and lower drum.

LD refers to the lower drum

See Outline for dimensions

| | Power ratio | Power ratio LD | Gear ratio |
|-----------|-------------|----------------|------------|
| 1st speed | 11,70 : 1 | 6,23 : 1 | 2,30 : 1 |
| 2nd speed | 46,60 : 1 | 24,79 : 1 | 9,17 : 1 |

The theoretical power ratio does not take friction into account.

Weight

| | ST |
|-------------|-----|
| weight (Kg) | 6,2 |

Maximum working load

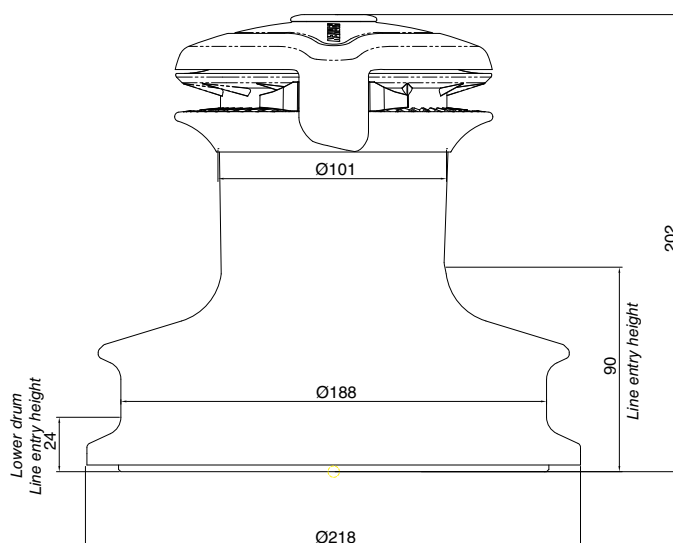


WARNING!

The maximum working load (MWL) for the 46.2 STQP Performa™ Winch is 1300 Kg (2866 lb).
The maximum working load (MWL) for the 46.2 STQP Performa™ Winch relative to the lower drum is 500 Kg (1102 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



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.



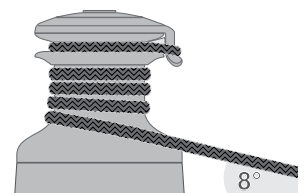
WARNING!

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.



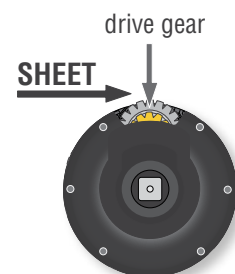
WARNING!

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.


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



2. Slide off the assy socket n°27 and the cover n°26



3. Unscrew the three screws n°25 ($\approx 4\text{Nm}/35\text{ in-lb}$)



4. Remove the stripper arm n°24 by rotating and lifting it.



5. Lift off the drum n°28

Install the winch on the deck in the position you have chosen, keeping in mind the limits described on page 3.

Installation procedure

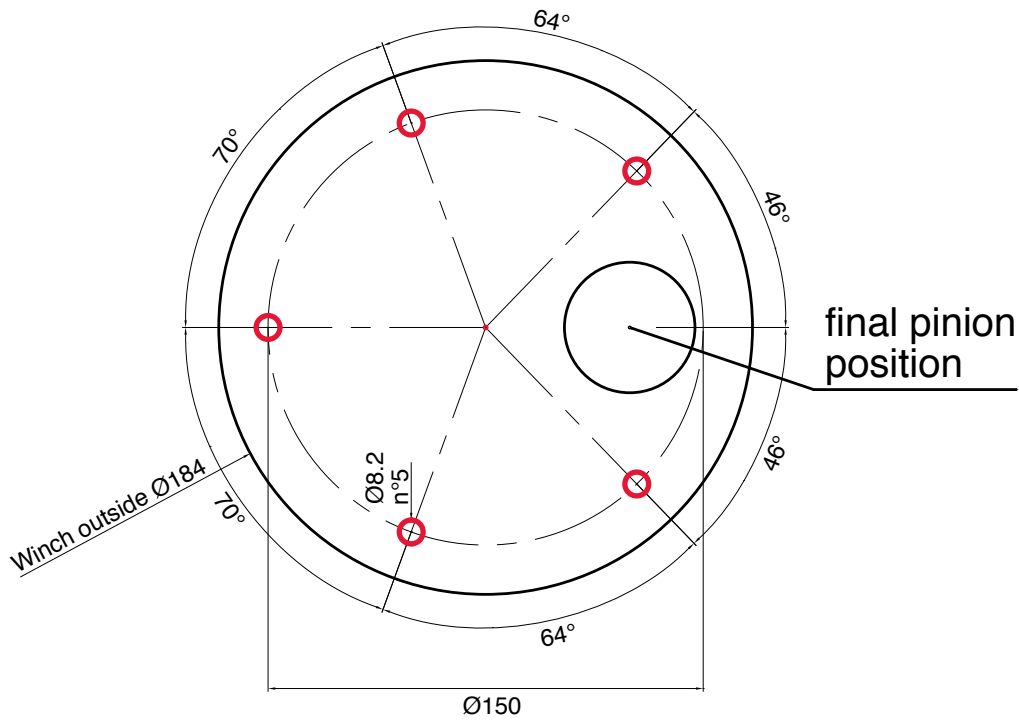
Carry out the **Procedure**, then install the winch on the deck in the chosen position.

- 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.

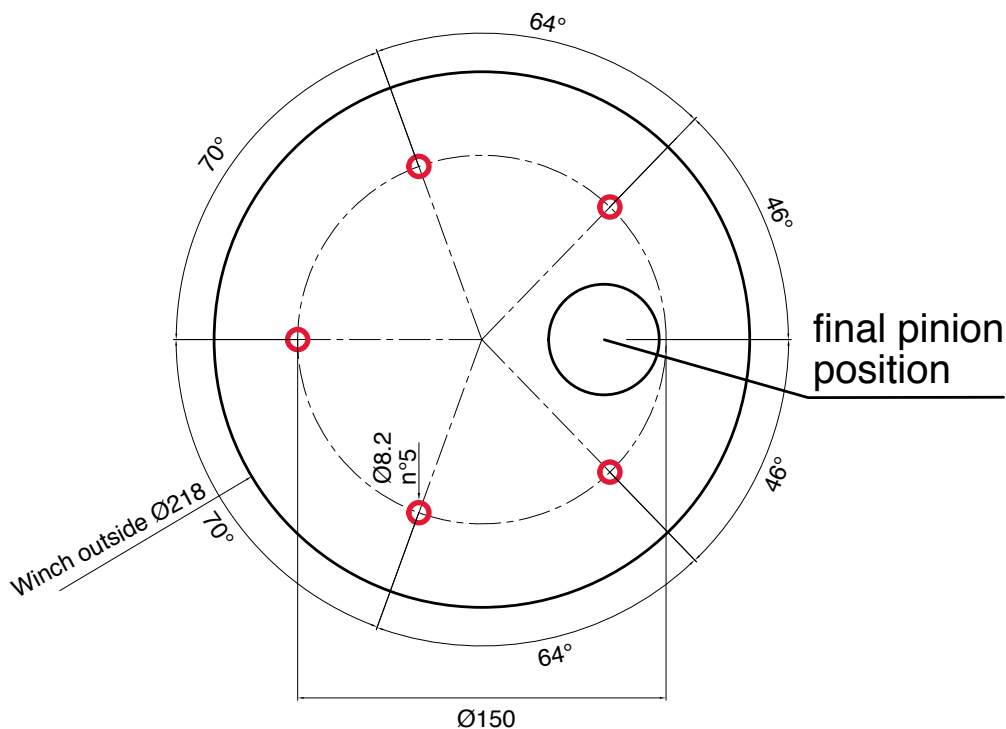
Below is a reduced scale diagram.

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

Winch STP



Winch STQP



- B.** Remove the winch and drill the five 8.2 mm diameter holes.
- C.** Bolt the base of the winch to the deck using five 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 of the **Procedure** 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.

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, on the stickers on the winches or on any anodized, chrome plated and plastic 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

Disassembly procedure

Tools needed



One medium flat-bladed screwdriver

A number five hex key



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



6. Completely unscrew the three screws n° 26 and remove the stripper arm support n°21



7. Slide out the central shaft n°19



9. Unscrew the 5 hex screws n°16
($\approx 20\text{Nm}/177\text{ in-lb}$)



9. Remove the assy housing n°15
Important: washer n°13 may remain inside the drum support!



10. Remove the gear n°14



11. Remove the washer n°12



12. Remove gear n°9 and remove the pawls n°7. To facilitate the operation press the spring against the pawl with a blade.



13. Slide off gear n°2



14. Remove the pinion n°10.



15. Slide off gear n°5



16. Remove the washer n°4.

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



I. Unscrew the 4 screws n°23
($\approx 4\text{Nm}/35\text{ in-lb}$)



II. Remove the jaws n°22

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.

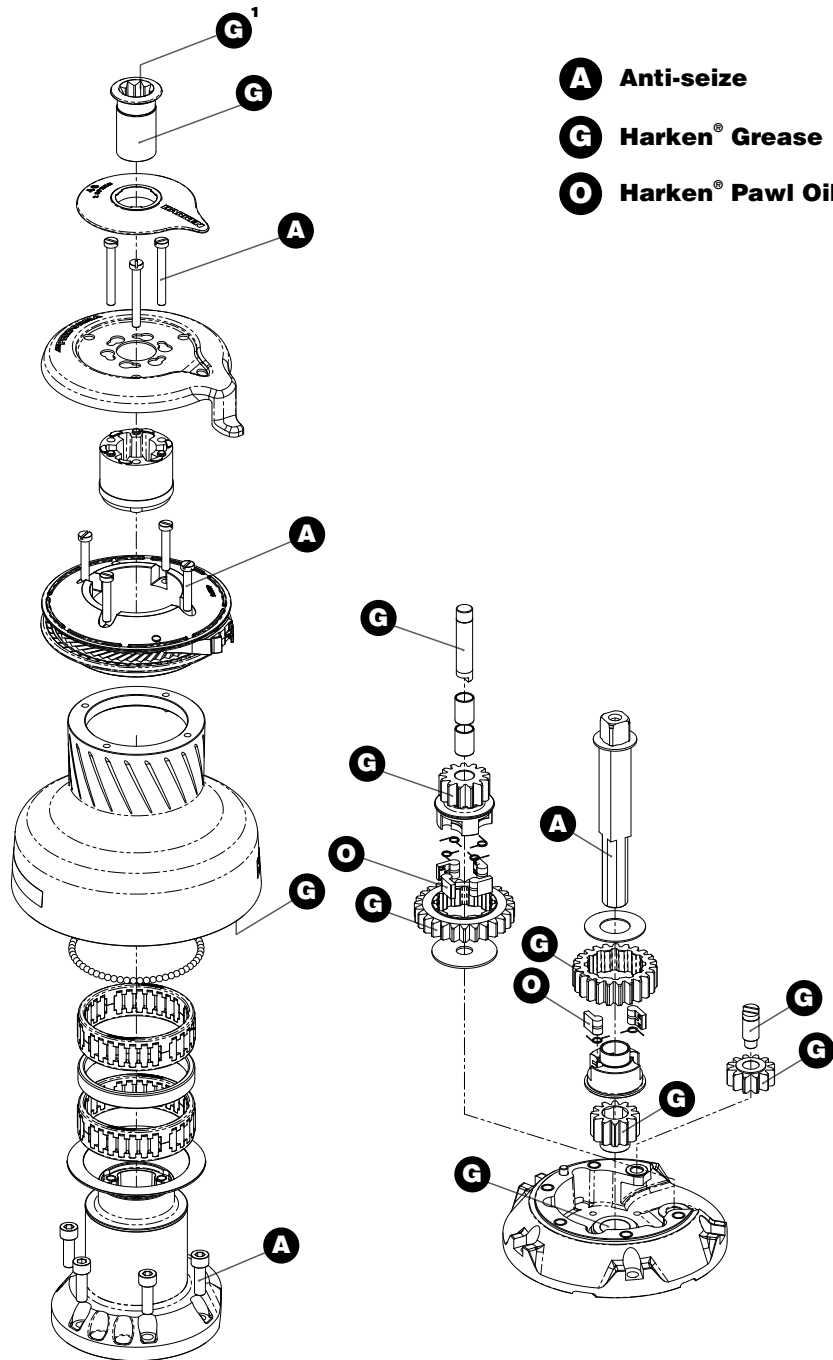
Carry out maintenance on components using the products listed below.

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

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.

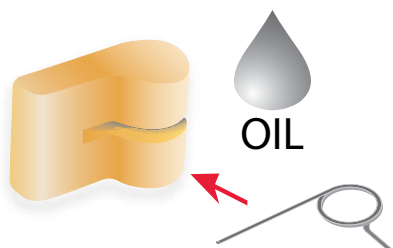
To tighten bolts, use the torque indicated in the disassembly procedure.



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



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



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.

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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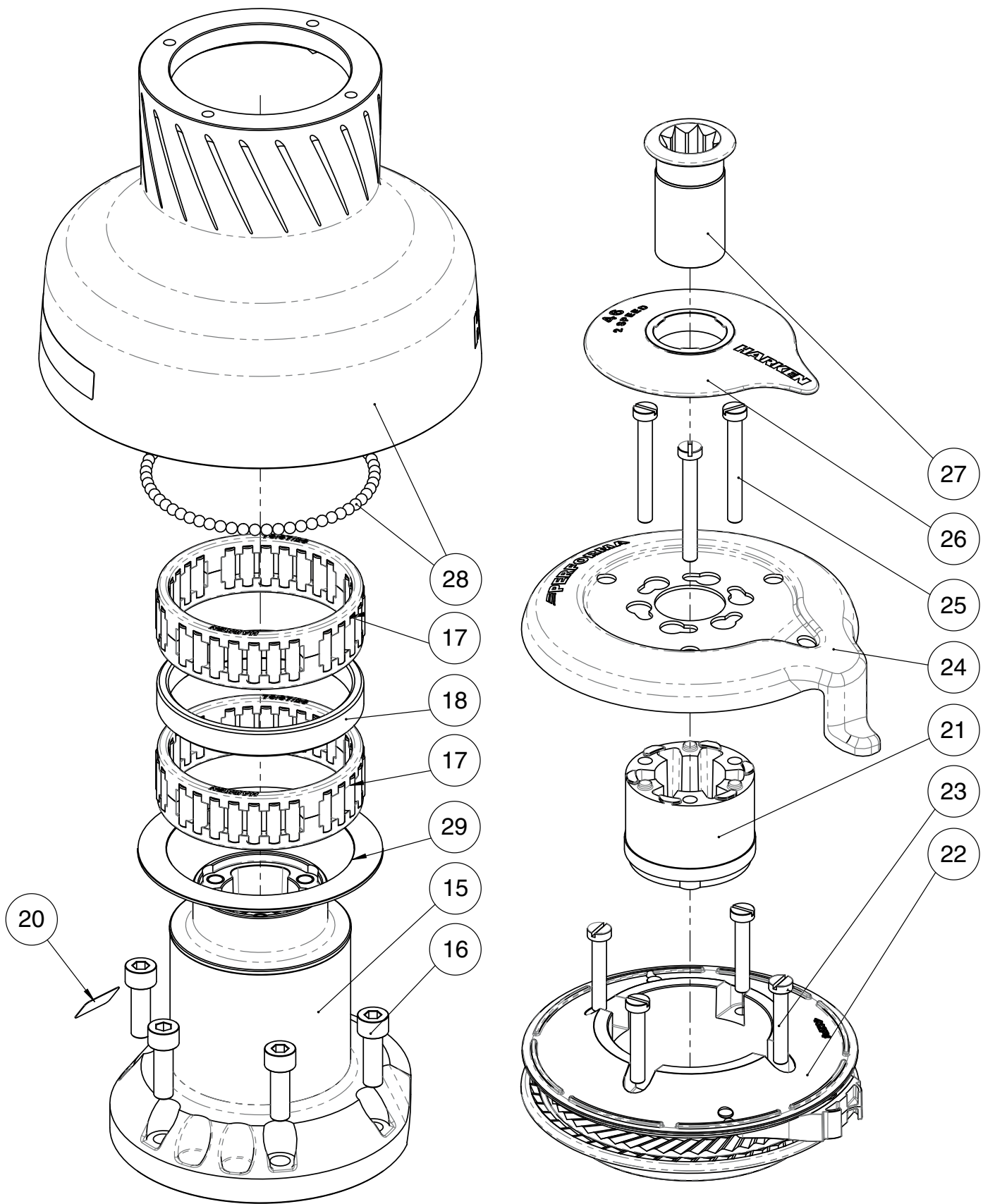
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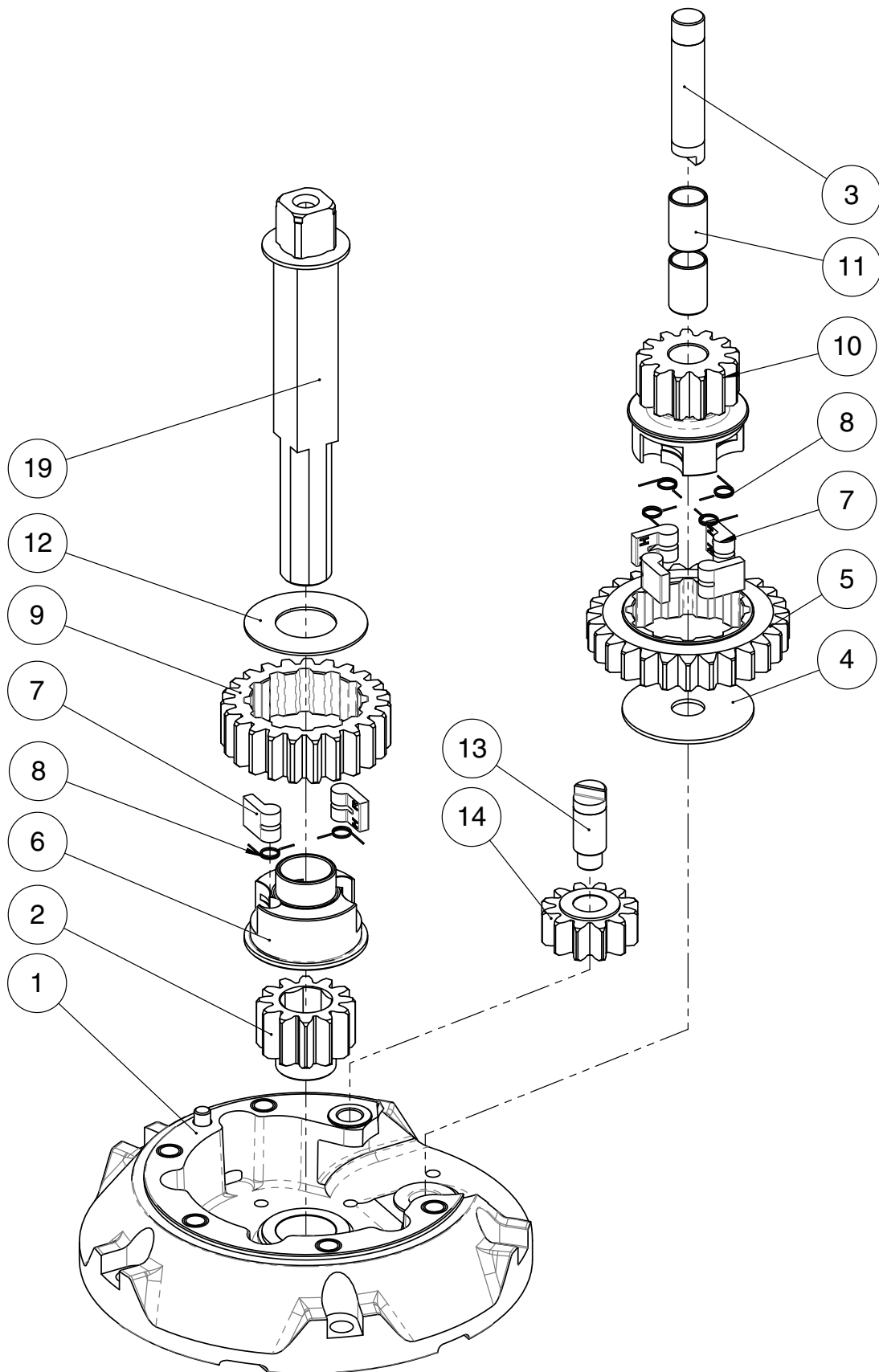
Exploded view 1/2



Performa Winch 46.2 STP



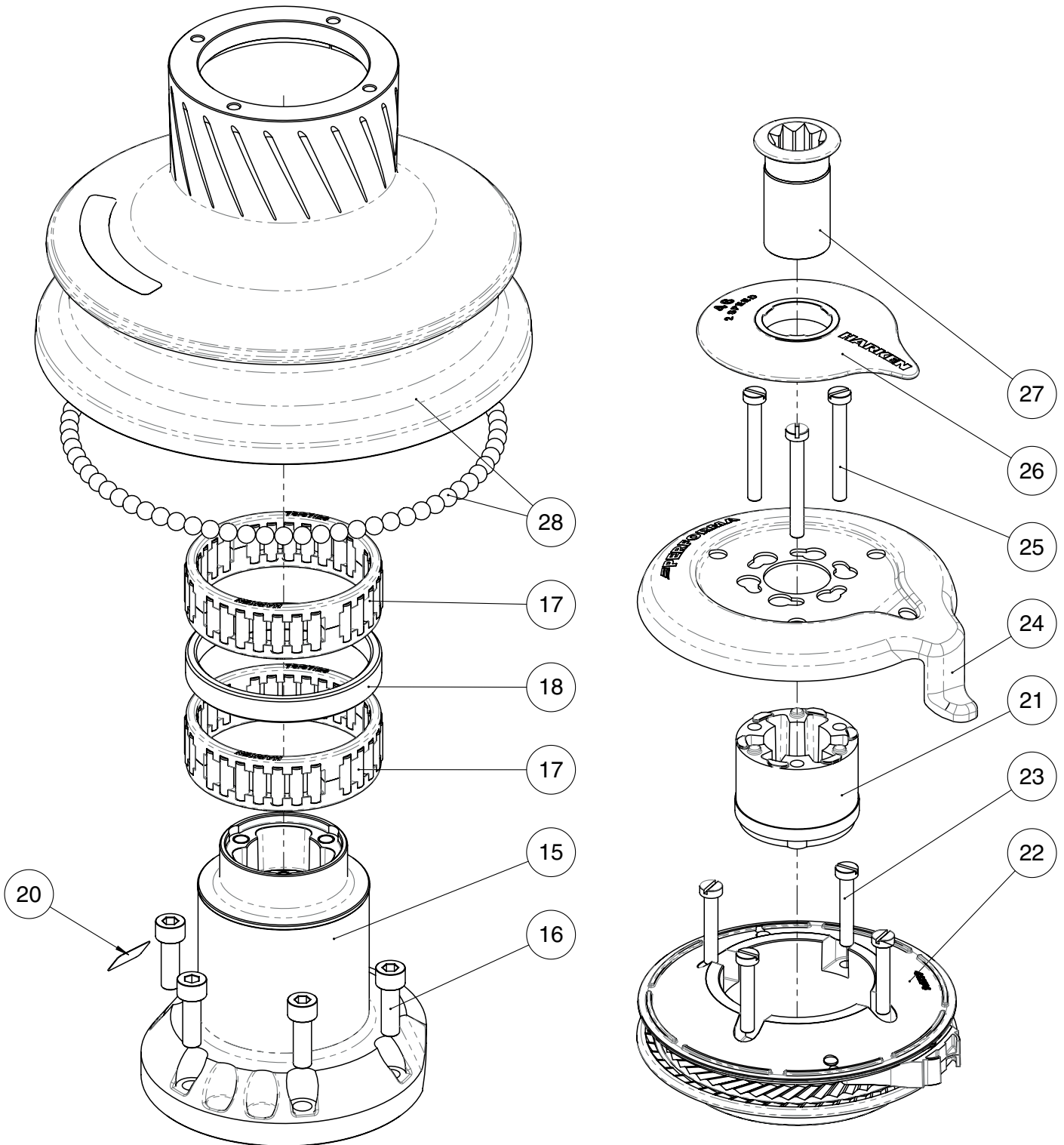
Performa Winch 46.2 STP



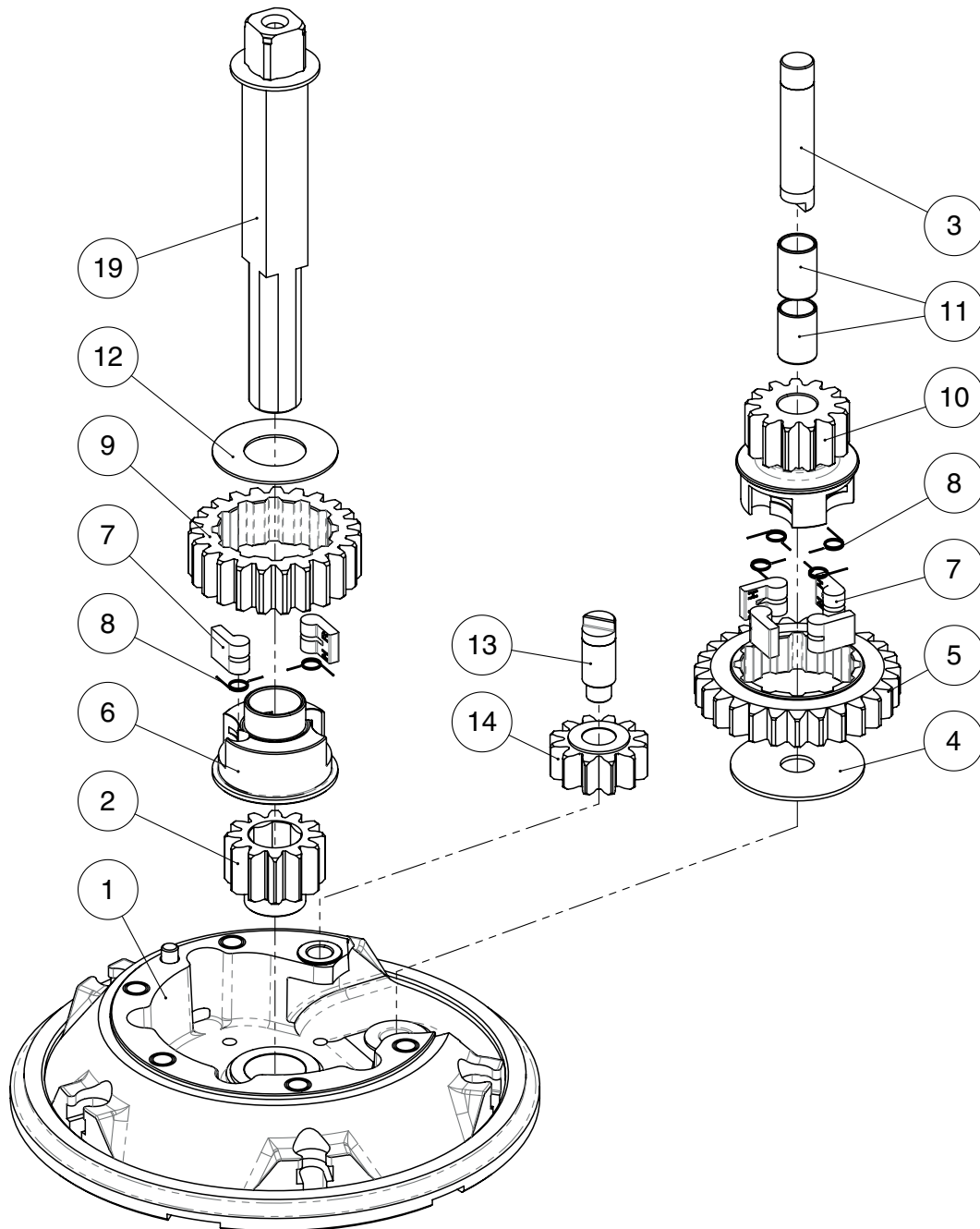
Exploded view 1/2

HARKEN

Performa Winch 46.2 STQP



Performa Winch 46.2 STQP



Performa Winch 46.2 STP

| Pos | Q.ty | Code | Description | Pos | Q.ty | Code | Description |
|-----|------|------------|-----------------------------|-----|------|------------|------------------------------------|
| 1 | 1 | A96633300 | Performa Assy Base Winch 46 | 18 | 1 | S413390080 | Spacer |
| | 1 | S413350080 | Performa Base W46 | 19 | 1 | A94161400 | Assy Central Shaft Winch 46 |
| | 1 | S4152300A7 | Roller Ø6x19 | | 1 | S413880002 | Central shaft W46 ST |
| | 1 | S414890080 | Bushing Ø22xØ25x9.5 | | | | Washer Ø17.2xØ32x1.5 |
| | 1 | S413330085 | Bushing Ø9xØ11x7 | 20 | | | Winch Serial Number Sticker |
| | 1 | S413330085 | Bushing Ø12xØ14x11 | 21 | 1 | S4129400A0 | Stripper arm support |
| 2 | 1 | S413020004 | Gear Z12 | 22 | 1 | A96589500 | Performa Assy Jaws W46 |
| 3 | 1 | S413300004 | Pin Ø12x60 | | | | Lower Jaw W46 |
| 4 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | | | | Performa Upper jaw W46 |
| 5 | 1 | S413260004 | Gear Z27 | | 1 | S414280080 | Peeler W46 - 50 |
| 6 | 1 | S414260004 | Pawls Carrier Ø8xN2 | | 4 | S385970001 | Spring |
| 7 | 6 | S000090004 | Racing pawl Ø8* | 23 | 4 | M0601803 | Screw UNI EN ISO 1207 - M6x35 - A4 |
| 8 | 6 | S000380001 | Pawl Spring Ø8* | 24 | 1 | S657390019 | Performa Black Stripper Arm W46 |
| 9 | 1 | S412830041 | Gear Z23 | 25 | 3 | M6007103 | Screw M6x50 UNI6107 |
| 10 | 1 | S413250041 | Pinion Z13 | 26 | 1 | S4127000A5 | Cover 2 speed W46 |
| 11 | 2 | M6017694 | Bushing PSM-1214-20 | 27 | 1 | A94136400 | Assembly Socket W20-80 |
| 12 | 1 | S413120002 | Washer Ø22.5xØ45x1 | | | | Socket Handle W20/80 |
| 13 | 1 | S413070004 | Pin Ø9xØ12x32.5 | | 1 | S415130085 | Washer Ø7.7xØ25x5.8 |
| 14 | 1 | A94133400 | Assy Gear Z12 | | 1 | M0614303 | Screw M8x20 UNI 6109 |
| | 2 | S414900080 | Gear Z12 | 28 | 1 | A96572300 | Performa W46 Drum |
| | | | Bushing Ø12xØ14x8 | | | | Performa Drum W46 |
| 15 | 1 | A94132200 | Assy Housing Winch 46 | | 61 | M0619580 | Ball 3/16" |
| | | | Housing Winch 46 | | 1 | S6572900A3 | Bearing ring W46 |
| | 1 | S414900080 | Bushing Ø12xØ14x8 | | | | Winch Product Sticker** |
| | 1 | S413330085 | Bushing Ø12xØ14x11 | 29 | 1 | S657300052 | Performa Shim W46 |
| | 1 | S4133200B3 | Bushing for support | | | | |
| 16 | 5 | M0606303 | Screw M8x25 UNI 5931 | | | | |
| 17 | 2 | A74133700 | Bearing Ø75xØ87x26 | | | | |

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

**Winch product sticker



Performa Winch 46.2 STQP

| Pos | Q.ty | Code | Description | Pos | Q.ty | Code | Description |
|-----|------|------------|--|-----|------|------------|--|
| 1 | 1 | A94163700 | Assembly base W46Q for thrust bearing <i>Ring base W46 STQ</i> <i>Base W46</i> | 18 | 1 | S413390080 | Spacer |
| | 1 | S413350080 | <i>Roller Ø6x19</i> | 19 | 1 | A94161400 | Assembly Central Shaft Winch 46 <i>Central shaft W46 ST</i> |
| | 1 | S4152300A7 | <i>Bushing Ø22xØ25x9.5</i> | | 1 | S413880002 | <i>Washer Ø17.2xØ32x1.5</i> |
| | 1 | S414890080 | <i>Bushing Ø9xØ11x7</i> | 20 | | | Winch Serial Number Sticker |
| | 1 | S413330085 | <i>Bushing Ø12xØ14x11</i> | 21 | 1 | S4129400A0 | Stripper arm support |
| 2 | 1 | S413020004 | Gear Z12 | 22 | 1 | A96589500 | Performa Assembly Jaws W46 <i>Lower Jaw W46</i> |
| 3 | 1 | S413300004 | Pin Ø12x60 | | 1 | S414280080 | <i>Performa Upper jaw W46</i> |
| 4 | 1 | S278170002 | Washer Ø12.5xØ48x1.5 | | 4 | S385970001 | <i>Peeler W46 - 50</i> <i>Spring</i> |
| 5 | 1 | S413260004 | Gear Z27 | 23 | 4 | M0601803 | Screw UNI EN ISO 1207 - M6x35 - A4 |
| 6 | 1 | S414260004 | Pawls Carrier Ø8xN2 | 24 | 1 | S657390019 | Performa Black Stripper Arm W46 |
| 7 | 6 | S000090004 | Racing pawl Ø8* | 25 | 3 | M6007103 | Screw M6x50 UNI6107 |
| 8 | 6 | S000380001 | Pawl Spring Ø8* | 26 | 1 | S4127000A5 | Cover 2 speed W46 |
| 9 | 1 | S412830041 | Gear Z23 | 27 | 1 | A94136400 | Assembly Socket W20-80 <i>Socket Handle W20/80</i> |
| 10 | 1 | S413250041 | Pinion Z13 | | 1 | S415130085 | <i>Washer Ø7.7xØ25x5.8</i> |
| 11 | 2 | M6017694 | Bushing Ø12xØ14x20 | | 1 | M0614303 | <i>Screw M8x20 UNI 6109</i> |
| 12 | 1 | S413120002 | Washer Ø22.5xØ45x1 | 28 | 1 | A94163501 | Assembly Performa Drum W46 Q <i>Performa Drum W46 Q</i> |
| 13 | 1 | S413070004 | Pin Ø9xØ12x32.5 | | 72 | M0610280 | <i>Ball 5/16"</i> <i>Winch STQ product sticker**</i> |
| 14 | 1 | A94133400 | Assembly Gear Z12 <i>Gear Z12</i> | | | | |
| | 2 | S414900080 | <i>Bushing Ø12xØ14x8</i> | | | | |
| 15 | 1 | A94132200 | Assembly Housing Winch 46 <i>Housing Winch 46</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

