



**HARKEN**<sup>®</sup>  
**TRACTION WINCH 500**  
INTW500  
*User manual*

Original Instruction

UINTW500-00 10-09-2021



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## GLOSSARY AND SYMBOLS

**Intended Use** - use of the device according to the information supplied in the instructions for use.

**Improper Use** - use of the device in a way different from that indicated in the instructions for use.

**General User** - a user that use the device to pulling loads

Text preceded by the following symbols contains very important information or instructions, especially in regards to safety.

Failure to observe these may lead to:

- danger for operators
- invalidity of the contract warranty
- refusal of the manufacturer to accept responsibility

**WARNING!**

This denotes the existence of the potential danger, which could cause injury or damage if the information or instructions are not followed





**NOTE!**

This denotes important information concerning the device

## General Information

### IDENTIFICATION DATA AND PLATES ON THE DEVICE

Each device is identified by a plate on which the reference data of the device are inscribed indelibly. Always quote these references when contacting the manufacturer or service centres.

|   |                                |   |   |                          |
|---|--------------------------------|---|---|--------------------------|
| <b>HARKEN</b> Italy spa   |                                | <b>Traction Winch 500</b>   |   | INTW500                  |
| via Marco Biagi, 14<br>22070, Limido Comasco (CO) - Italy<br>www.harken.com<br>☎ (+39) 031 3523511  |                                | <br>minimum 4 turns<br>clockwise |   | Serial No. / N. di serie |
|   | rope diameter<br>diametro fune | Ø 8-12 mm   |  |                          |
| <b>Max Working Load (MWL)</b> 500 kg  |                                |   |   |                          |

|          |          |          |  |
|----------|----------|----------|--|
| <b>1</b> | <b>2</b> |          |  |
| <b>3</b> | <b>5</b> | <b>4</b> |  |
| <b>6</b> | <b>7</b> |          |  |

1. Name of manufacturer.
2. Name of product and Winch Model
3. Manufacturer's identification data.
4. Serial number in format:



last two numbers of the year of manufacture of the device (e.g. 21 = the year 2021).

5. Safety information of Minimum turns and the diameter of the rope to use and pictogram showing the direction of rotation of the rope on the winch.
6. Pictogram instructing you to read the manual before using the device.
7. Indicator of the Max Working Load (MWL) of the device for pulling loads.

The plate is located under the device (see figure on right)



## GENERAL ADVICE

---

Use of the Traction Winch 500 for pulling loads is permitted to a general user in accordance with National Regulations & Working Guidelines/Practices.

Harken® is not responsible for damage caused by the Traction Winch 500 to people, animals or property in the case of:

- improper use of the Traction Winch 500
- lack of proper maintenance, as indicated in the Maintenance chapter of this Manual
- unauthorised modifications or changes
- use of spare parts that are not original or specific for the model
- total or partial failure to observe the instructions
- usage contrary to specific national regulations

## INTENDED USE

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This winch is designed to be used as a manually powered, rope-handling winch for pulling loads.

This product, as supplied by Harken, is considered to be applicable to general pulling operations. Should this product be incorporated into systems for lifting objects and/or persons, it must be CE Certified for its intended application adding the appropriate additional safety devices. Such systems are classified as “machinery for lifting objects and/or persons” and needs to be CE Certified

## IMPROPER USE

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The winch must not be used:

- for purposes different from those outlined in “Intended use” chapter, or for purposes not mentioned in this manual or different from those mentioned
- if unauthorised modifications or interventions have been carried out
- in an explosive atmosphere
- after it has fallen from a height of more than 1 meter onto a hard surface. In this case the device must be returned to the manufacturer or to a Harken® authorised repair centre
- with wire rope
- with loads in excess of the Maximum Working Load (MWL) of 500 kg for pulling loads

**WARNING!**

Subjecting the winch to loads above the maximum working load can cause the winch to fail or pull off the mounting surface suddenly, possibly resulting in severe injury or death.

## Safety Information

---

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

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It is necessary use gloves when operating the device.



### RESIDUAL RISKS

---

You must pay attention to the following residual risks present when using Traction Winch 500:



#### **WARNING! Rotating Parts Trapping Risk**

Always wear clothing and protective gloves that are form fitting. Avoid loose gloves or clothing and always follow the instructions in the manual.



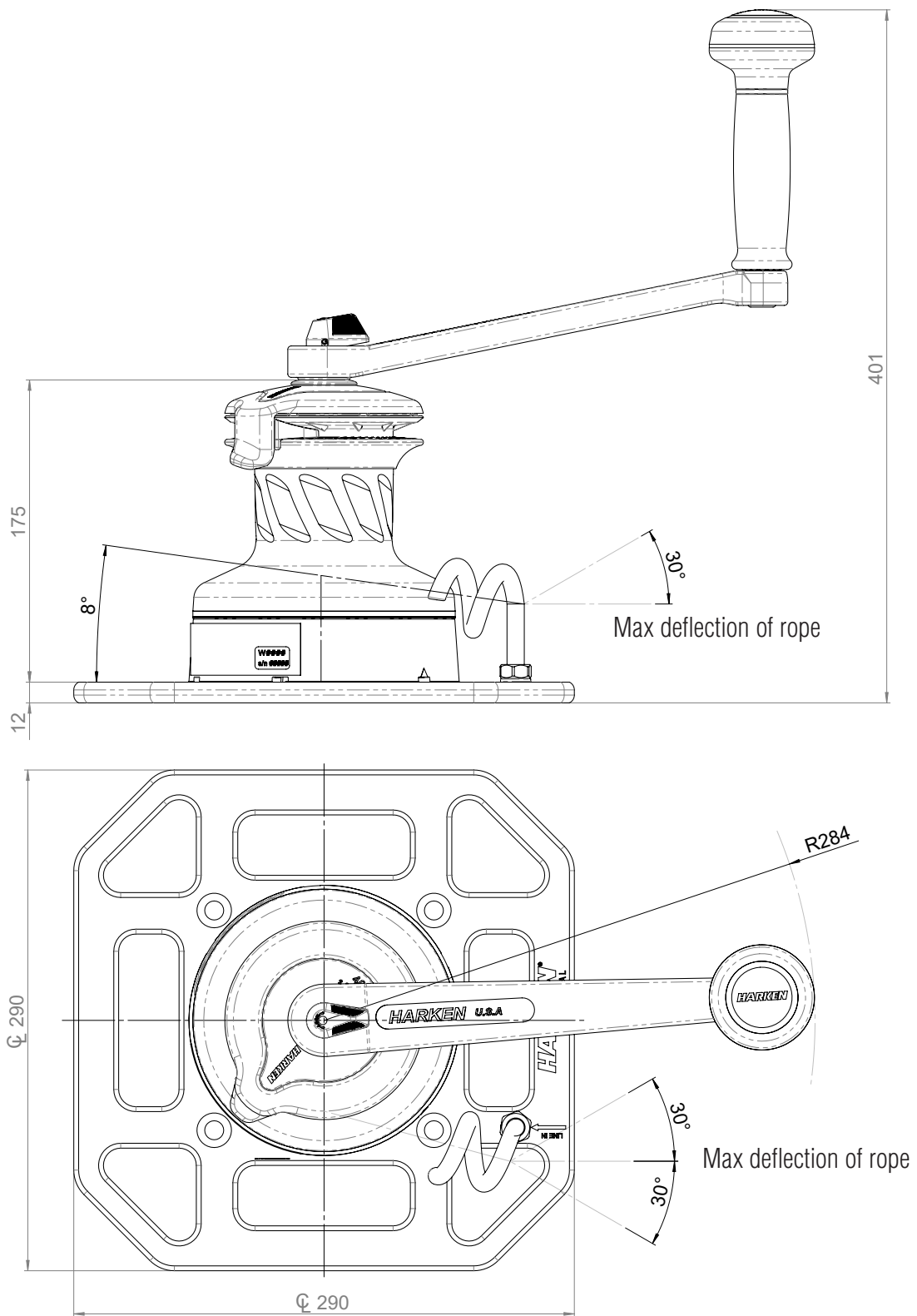
## SYSTEM DESCRIPTION

## Parts Description



| Pos. | Description   | Pos. | Description |
|------|---------------|------|-------------|
| 1    | Handle        | 9    | Peeler      |
| 2    | Handle Lock   | 10   | Drive line  |
| 3    | Socket Handle | 11   | Plate       |
| 4    | Stripper Arm  |      |             |
| 5    | Upper Jaw     |      |             |
| 6    | Lower Jaw     |      |             |
| 7    | Drum          |      |             |
| 8    | Skirt         |      |             |

OUTLINE



Note: all dimensions are in mm.

## MAX WORKING LOAD

The Max Working Load (MWL) of the Traction Winch 500 is:

- 500 kg (1102.3 lb) for pulling loads



### WARNING!

Do not apply a load greater than the Max Working Load (MWL) to the Winch.

## ROPE REQUIREMENTS



### WARNING!

Use only ropes with a diameter listed in this manual for each model of Winch.



### WARNING!

Use only ropes in good condition.



### WARNING!

For correct maintenance of ropes consult the rope Usage Manual.



### WARNING!

Do not use with wire rope.

## TECHNICAL DATA

|                                       |   |
|---------------------------------------|---|
| Rope                                  | 8mm-12mm (5/16" - 15/32") for pulling loads       |
| Max Working Load (MWL)                | 500 kg (1102.3 lb) for pulling loads              |
| Power Ratio                           | 13,50:1 in first speed<br>39.90:1 in second speed |
| Gear Ratio                            | 2,13:1 in first speed<br>6.28:1 in second speed   |
| Winch Weight                          | 6 kg (83,7 lb)                                    |
| Winch Handle length                   | 254 mm (10")                                      |
| Recommended working temperature range | -10°C +50°C                                       |

### WINCH INSTALLATION

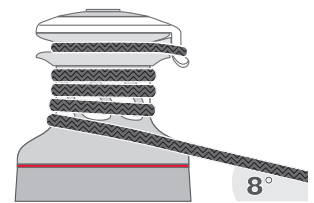
#### Mounting Surface

Winch must be installed on a flat surface, reinforced if necessary, to withstand a load equal to 2500 kg.

#### Winch Entry Angle of Pulling Rope

Winch entry angle must be  $8^\circ$  with a tolerance of  $\pm 2^\circ$  to avoid rope overrides.

Max deflection of rope after Drive Line is  $30^\circ$  in each direction (see OUTLINE chapter).



#### WARNING!

Verify entry angle of rope. It must be  $8^\circ$  with tolerance of  $\pm 2^\circ$ , to avoid rope overrides and damaging winch or making winch inoperable, leading to loss of control, possibly resulting in severe injury or death.

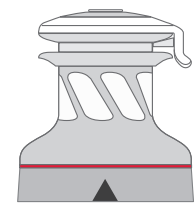
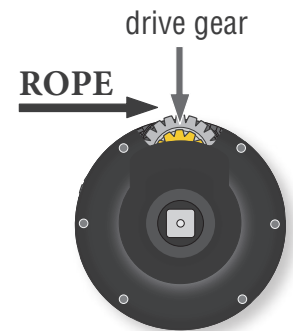
Mount winch so drive gear is positioned where rope enters winch drum.

Note: ▲ on winch skirt identifies location of drive gear.



#### WARNING!

Mount winch so that drive gear is positioned where rope enters winch drum. Incorrect positioning of drive gear can weaken winch leading to failure, possibly resulting in severe injury or death.



#### Winch Location

Winch must be installed in a position to allow sufficient working space around unit, so not to impede operation of handles.

Winch must be installed in a position to ensure visibility of the load trajectory by operator at all times.



#### WARNING!

Incorrect installation of winch may cause severe injury or death. Consult equipment supplier if in doubt about correct position of winch.

Harken® accepts no responsibility for defective installation or reassembly of its winches. If you have questions or concerns, Harken® Tech Service is at your disposal at [techservice@harken.it](mailto:techservice@harken.it).

## Installation

The Traction Winch 500 can be affixed in a number of ways dependant on the environment and industry; these include ratchet straps, M10 bolts, fibre slings and strops and karabiners, making for a truly universal and adaptable pulling solution.

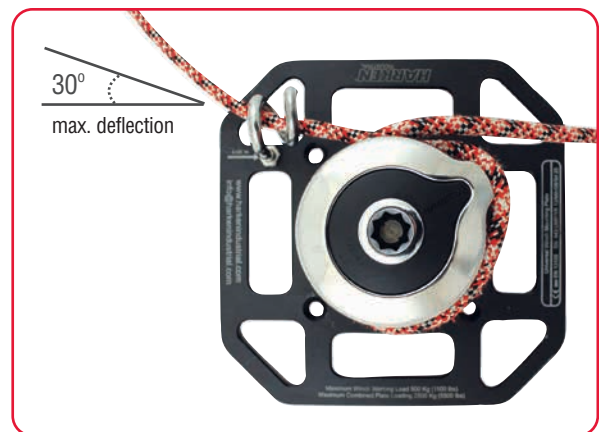
The Plate of Traction Winch 500 has eight openings which can be used to secure the winch in the in the desired position (see image).



### WARNING!

Ensure the plate is securely attached to the mounting surface, so that it can operate under load without significant movement.

The Traction Winch 500 plate must be installed so that the line can be led through the Drive Line to the winch Drum, with no more than 30° of line deflection in any plane. The installation should use pulley deflectors if necessary to ensure a fair lead to the winch. The Drive Line should not take any significant angle load. (See following images).



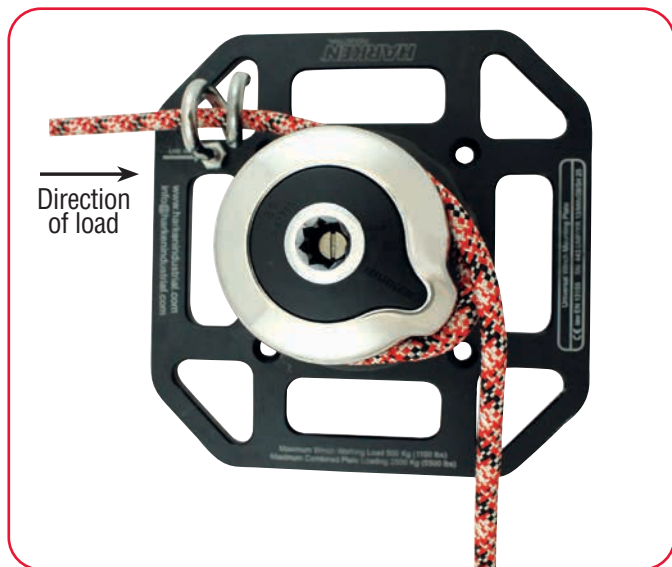
### WARNING!

Leading the rope directly on to the Drum can cause overrides and damage winch or make winch inoperable, leading to loss of control, possibly resulting in severe injury or death. Always lead the rope through the Drive Line.

The Traction Winch 500 must be installed in a position to allow sufficient working space around the unit, so not to impede operation of the handle.

The Traction Winch 500 must be installed in a position to ensure visibility of the lift trajectory by the operator at all times.

The stripper arm must be in a 4 o'clock position once the plate is mounted.



To change position of the stripper arm operate as following steps.

Tools required:

- medium flat-bladed screwdriver.





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



**2.** Slide off the hub and the cover



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



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

**5.** Turn the Stripper arm in the required position and reassemble the winch acting in reverse way the step from **1** to **4**.

## Traction Winch 500

### USING THE DEVICE - CHECKING THE DEVICE BEFORE USE

Check Plate for damage (excessive wear, cracks, deformation).

Check if Guard plate are correctly fixed to the Plate.

Check if Drive line is tight and is pointing away from drum (see above images)

Check if Winch base is securely fastened to plate (small amount of play between winch drum and base is normal).

Check if Stripper arm is positioned correctly depending on orientation of plate (see above images).

Check the correct operation of the Traction Winch 500 by rotating the drum by hand in clockwise direction and check the rotation lock in the opposite direction.

Handle can be inserted in winch and lock-in mechanism prevents accidental removal.

Handle can be rotated in both directions, resulting in the winch drum rotating on counter-clockwise handle rotation.



#### WARNING!

Before each use, visually inspect the winch for signs of wear, damage or failure. If such signs are present, do not use the device. If the worn or defective parts are not immediately replaced, the manufacturer will assume no responsibility for resulting damage or accidents.



#### WARNING!

Before each use inspect winch and jaws for degradation, cracks, or wear that may affect locking strength and operation. Check pulling rope to make sure that it is free from wear. If in doubt, replace with a suitably strong rope.



#### WARNING!

Before each use check the winch drum cannot be turned by hand counter-clockwise.

### PULLING LOAD



#### WARNING!

Keep fingers, loose clothing, hair etc away from winch. Area around winch handle should be kept clear of people and objects at all times.

To pull loads, proceed as follows:

1. Insert the rope inside Drive line then starting from the base, wind the rope on the drum of the Winch in a clockwise direction. Use at least four (4) complete turns, but no more than six (6), depending on rope diameter. Excess turns may cause rope to override or may cause excessive friction (See images).
2. Ensure that the rope does not override (overlap) on the Winch (See images).



Excessive turns at base of winch



Rope override



**WARNING!**

Take at least four (4) turns of the rope around the winch drum, and if it slips under load increase the number of turns to a maximum of six (6), taking care not to overlap the rope.

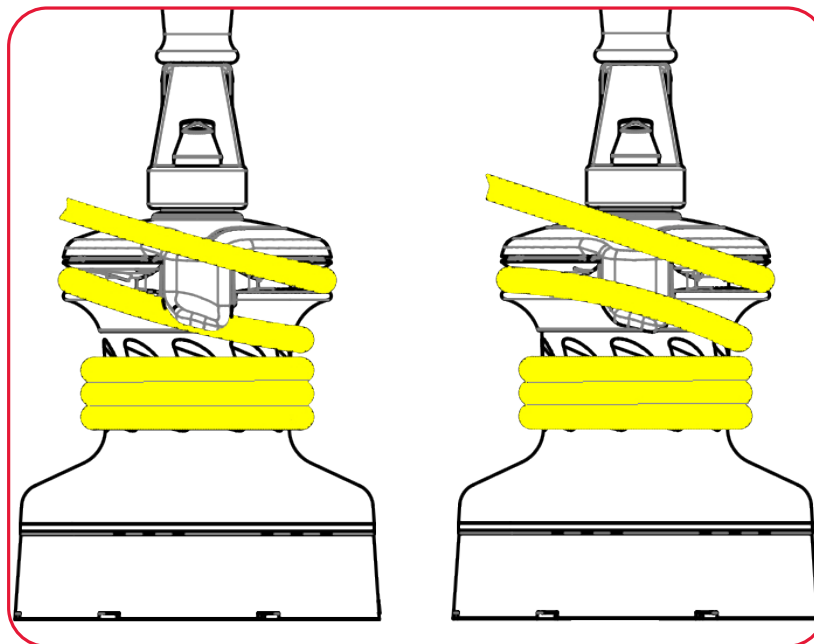
**NOTE!**

The number of turns needed round the winch drum depends on the load and the condition of the rope.

**WARNING!**

Never allow rope to (override) overlap on winch drum. This can cause rope to jam and can prevent load from being pulled.

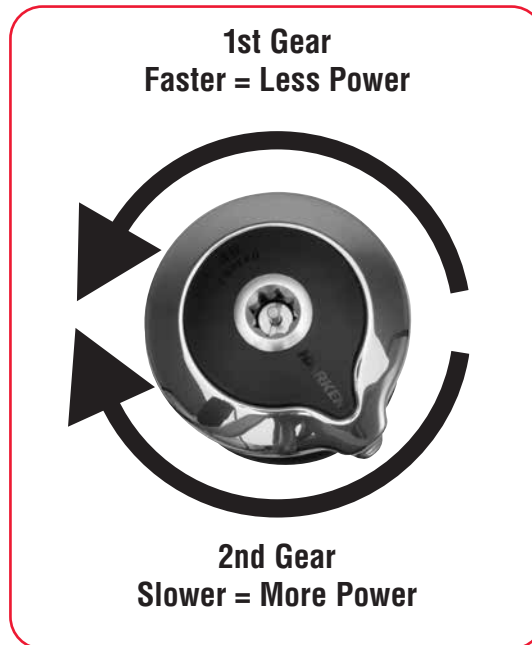
3. Pull rope through to take up any slack, then pass the rope on the stripper arm by winding rope clock-wise and pulling tight to engage.
4. Fit the rope into the jaws.

**INCORRECT****CORRECT****WARNING!**

Ensure correct placement of rope on the stripper arm and into the spring loaded jaws. Failure to secure the rope in the jaws may cause rope slippage.

## Traction Winch 500

5. Start by turning **counter-clockwise** the handle to pull the load. The gears automatically engage depending on direction handle is rotated.
  - Rotating handle counter-clockwise, 1st gear
  - Rotating handle clockwise, 2nd gear.



When handle becomes difficult to rotate in 1st speed, reverse direction to access 2nd speed. A higher power ratio makes a heavier load easier to lift with the same effort.



**NOTE!**

The maximum input speed of the Traction Winch 500 is 60 rpm.

**MAINTENANCE****NOTE!**

A formal inspection of the winch must be performed at least annually by trained personell. The inspection should be recorded in an inspection and maintenance log (see Maintenance schedule at the end of this manual).

**Wash**

Wash the Winch frequently with fresh water.

Do not allow cleaning products or other caustic solutions to come into contact with Winch, especially anodized, chrome-plated, or plastic parts. Do not use solvents, polishes, or abrasive pastes on logos or winch stickers.

**Maintenance Schedule**

Traction Winch 500 must be completely overhauled, cleaned, and lubricated at least every 12 months. Maintenance of Winches must be carried out exclusively by trained personnel. Harsh environment and/or heavy use may require more frequent maintenance.

**NOTE!**

Do not replace or modify Traction Winch 500 with a part that was not designed for it.

**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.

**NOTE!**

Maintenance of Traction Winch 500 must be carried out exclusively by trained personnel.

**Disassembly procedure**

Tool 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 

## Traction Winch 500



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



2. Slide off the hub and the cover



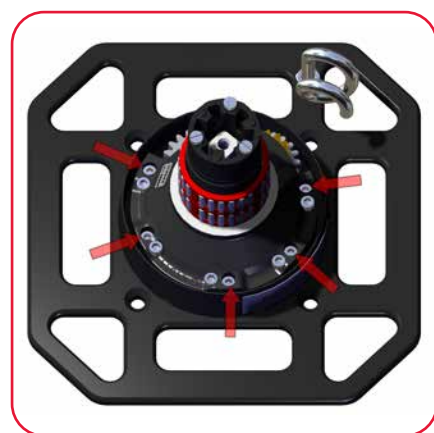
3. Unscrew the three screws (4Nm/35in-lb)



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



5. Lift off the drum



6. Unscrew the five screw (8Nm/71in-lb, Loctite® 270) and remove the winch from the plate



7. Completely unscrew three screws



8. Remove the self-tailing arm support and slide out the bushing



9. Slide out the central shaft



10. Unscrew the 6 stainless hex screws (8 Nm/71 in-lb) **NOTE** not those painted red



11. Remove the drum support. Note down serial number of winch and record.



12. Remove the washer. Important: washer may remain inside the drum support!



13. Remove the gear and remove the pawls. To facilitate the operation press the spring against the pawl with a blade.



14. Slide off gear.



15. Slide off gear.



16. Slide off gears.



17. Remove the pawls. To facilitate the operation press the spring against the pawl with a blade.



18. Remove washer.

## Traction Winch 500

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



1. Unscrew the four screws (4 Nm/35 in-lb)



2. Remove the jaws.

If it is necessary to replace Pigtail, proceed as follows:



1. Unthighten the nut to unlock and unscrew the Pigtail from the Plate.



2. Install nut on the new Pigtail.  
NOTE. Pigtail should be installed with Loctite® 270.



3. Wind nut back down onto plate to lock pigtail in place with the end of the pigtail spiralling towards the winch line entry point

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.

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!**

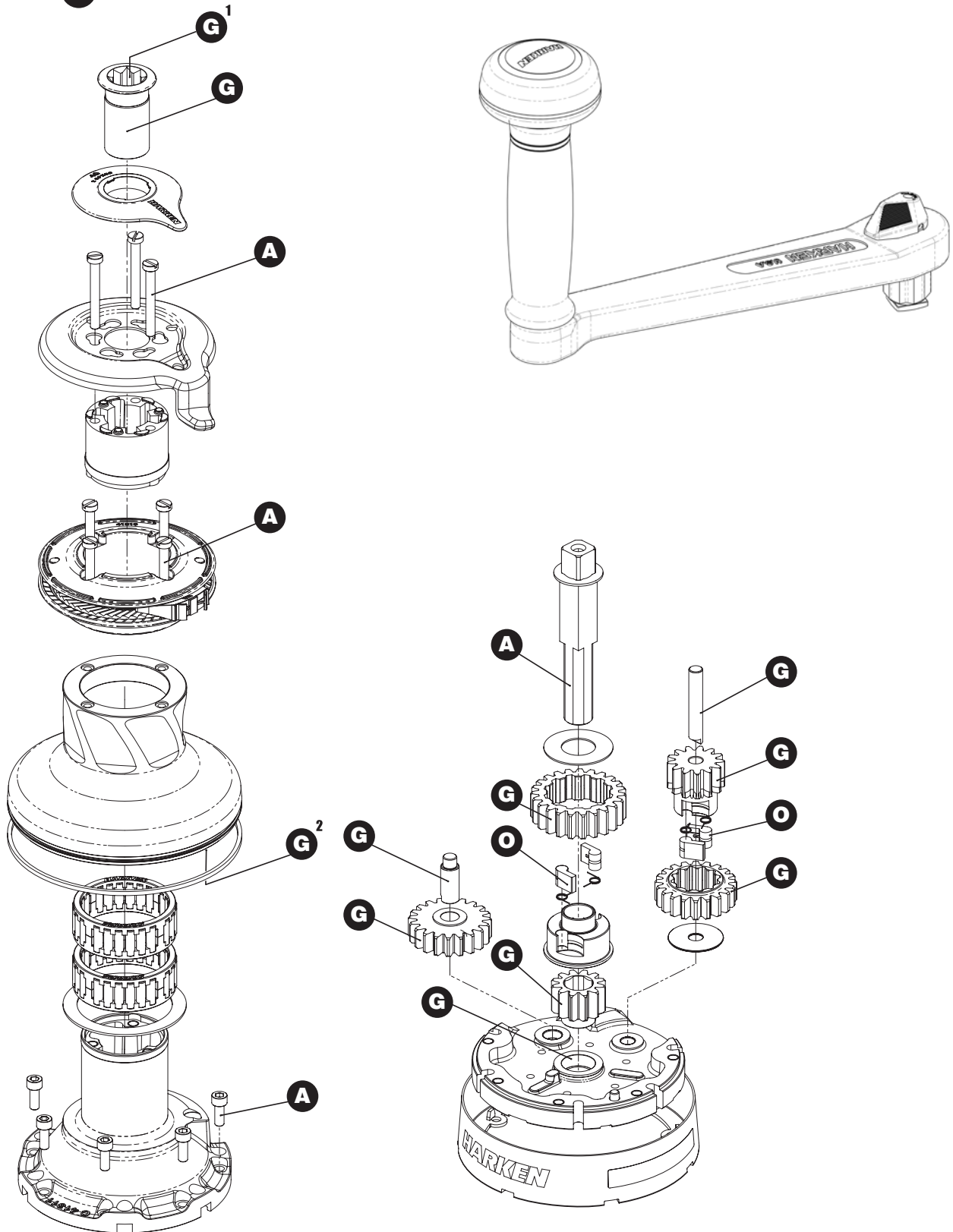
EXPLODED VIEW WITH MAINTENANCE PRODUCTS AND PARTS LIST

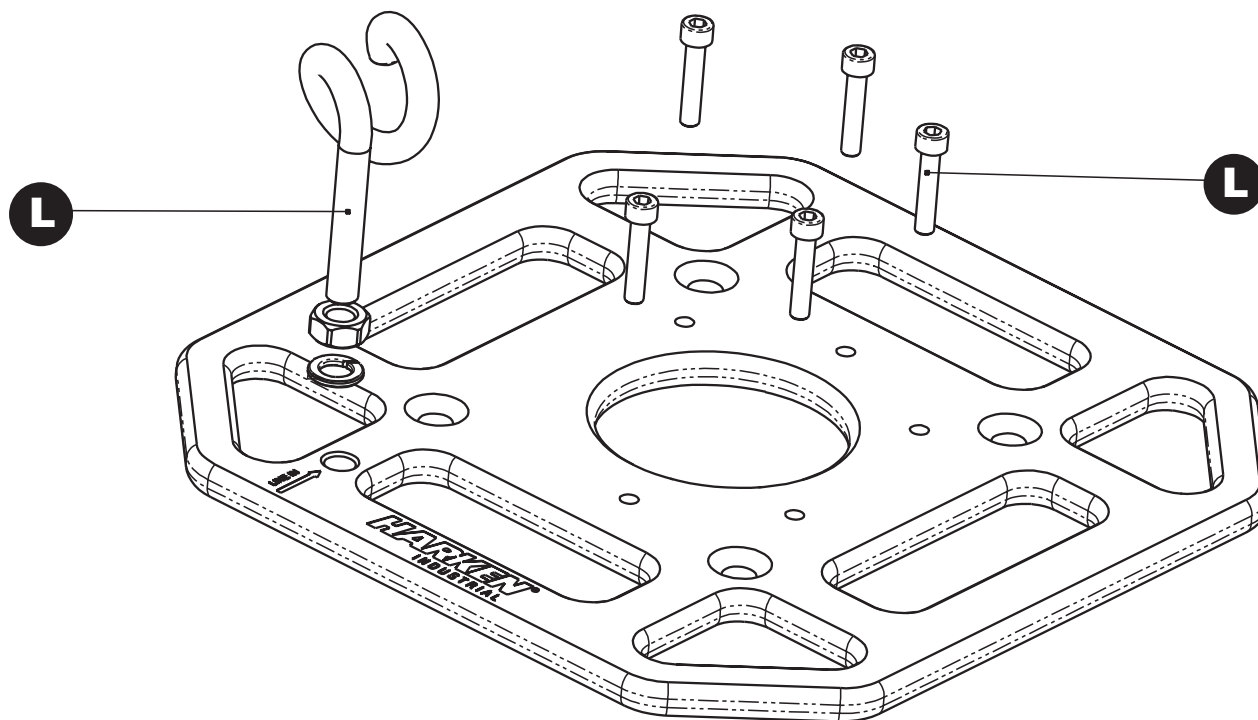
**A** Anti-seize

**G** Harken® Grease *Harken® grease: 1. on assy socket screw  
2. on drum gear*

**O** Harken® Pawl Oil

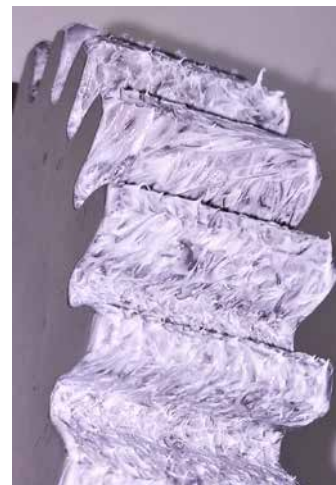
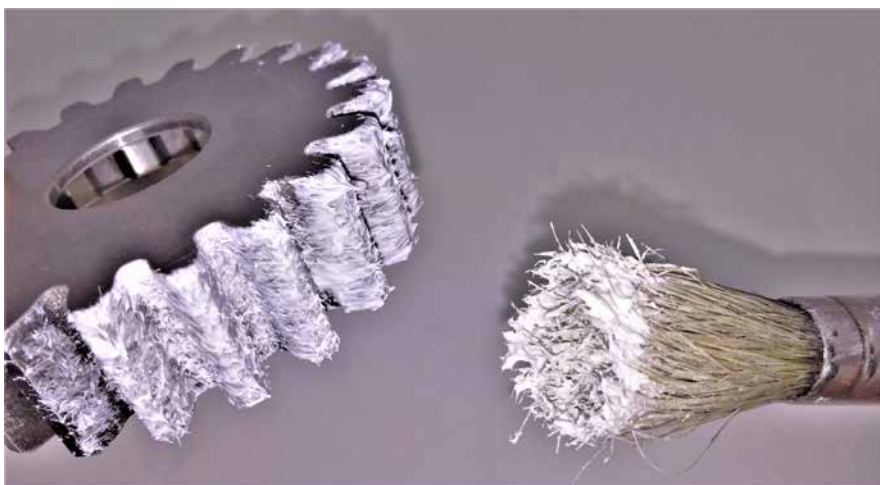
**L** Loctite® 270





**NOTE!**

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

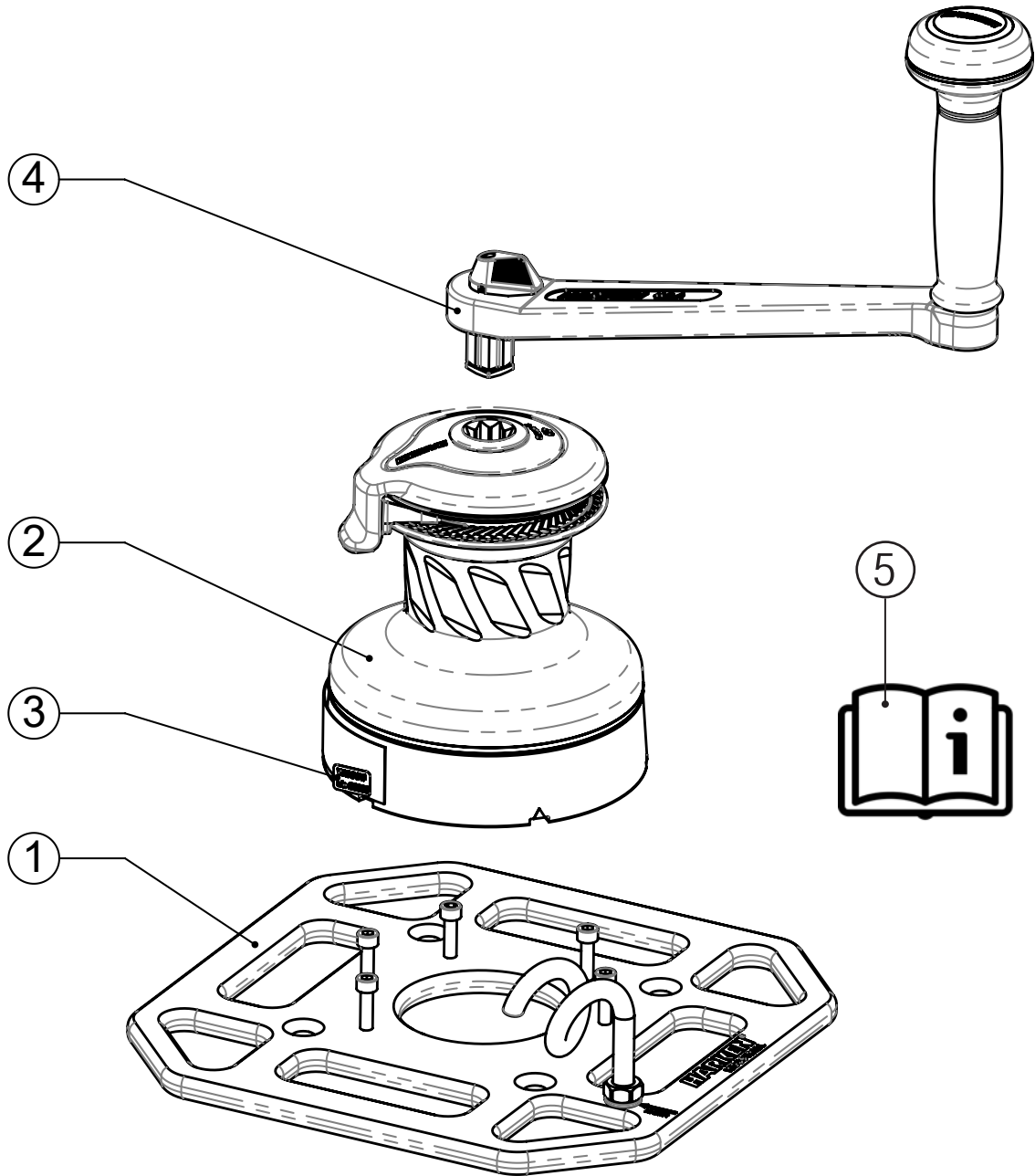


**NOTE!**

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.

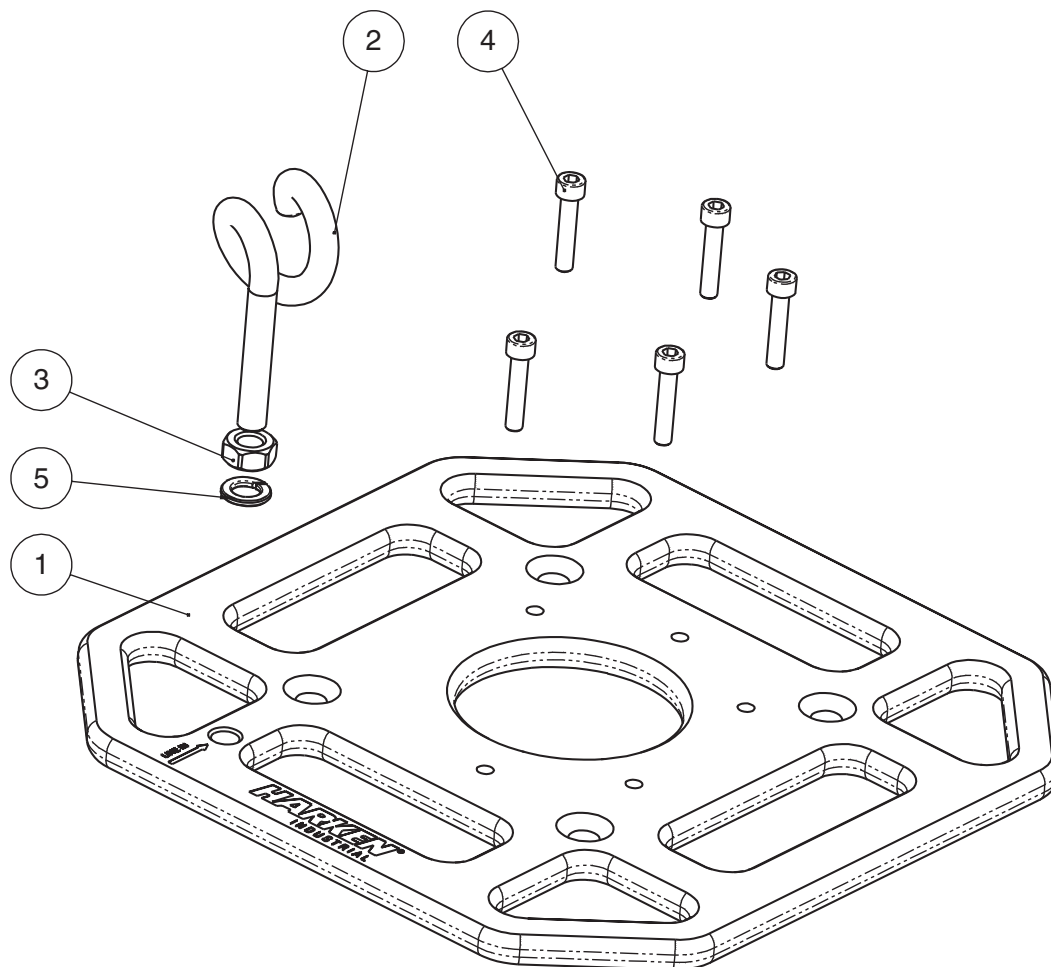


Parts list Traction Winch 500



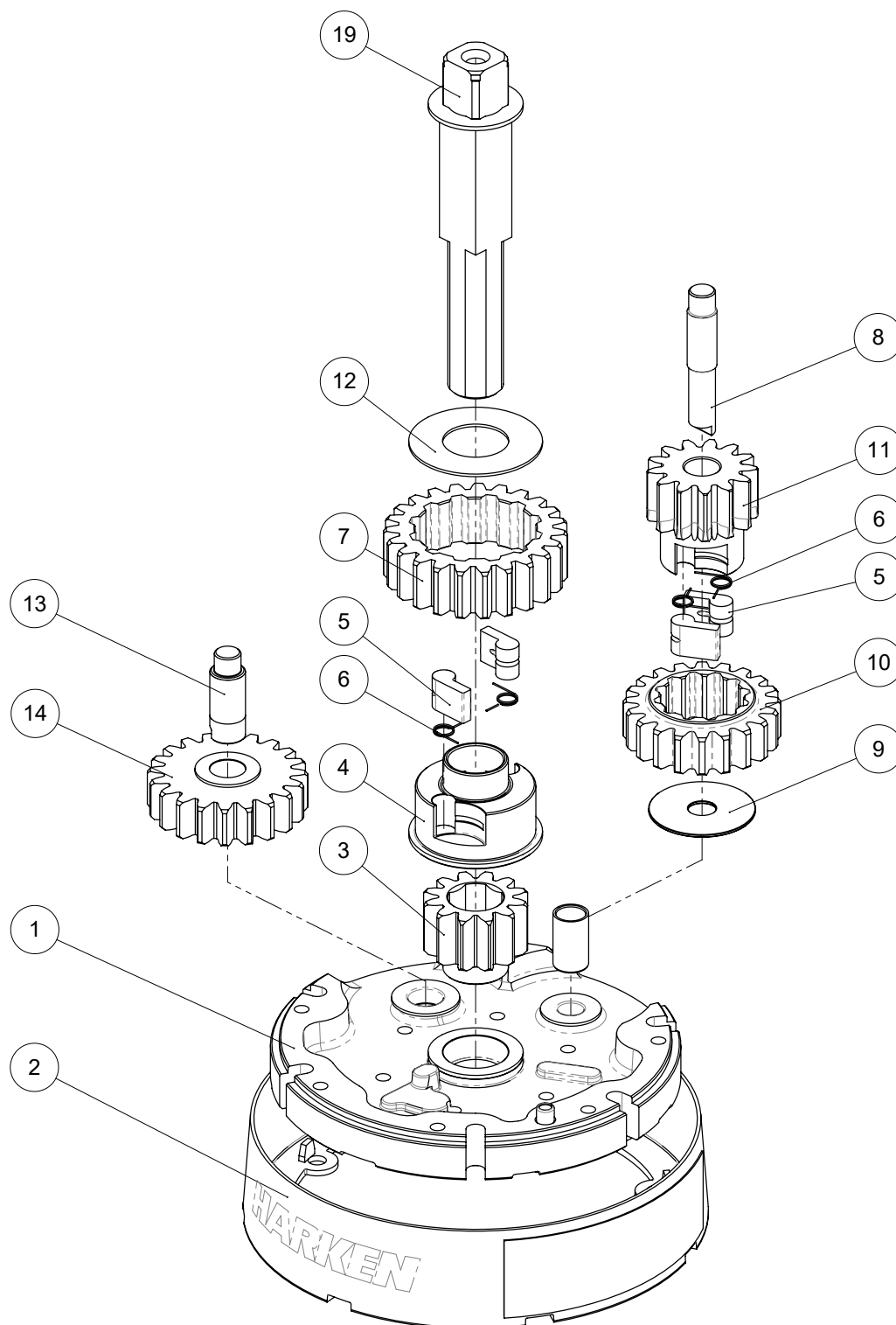
| Pos. | Q.ty | Code         | Description                 |
|------|------|--------------|-----------------------------|
| 1    | 1    | A96885400    | Plate assembly              |
| 2    | 1    | A97419000    | Assy Traction Winch 500     |
| 3    | 1    | S418760063   | Winch Serial number sticker |
| 4    | 1    | F83528400    | Handle B10ASG               |
| 5    | 1    | S741970020EN | User Manual                 |

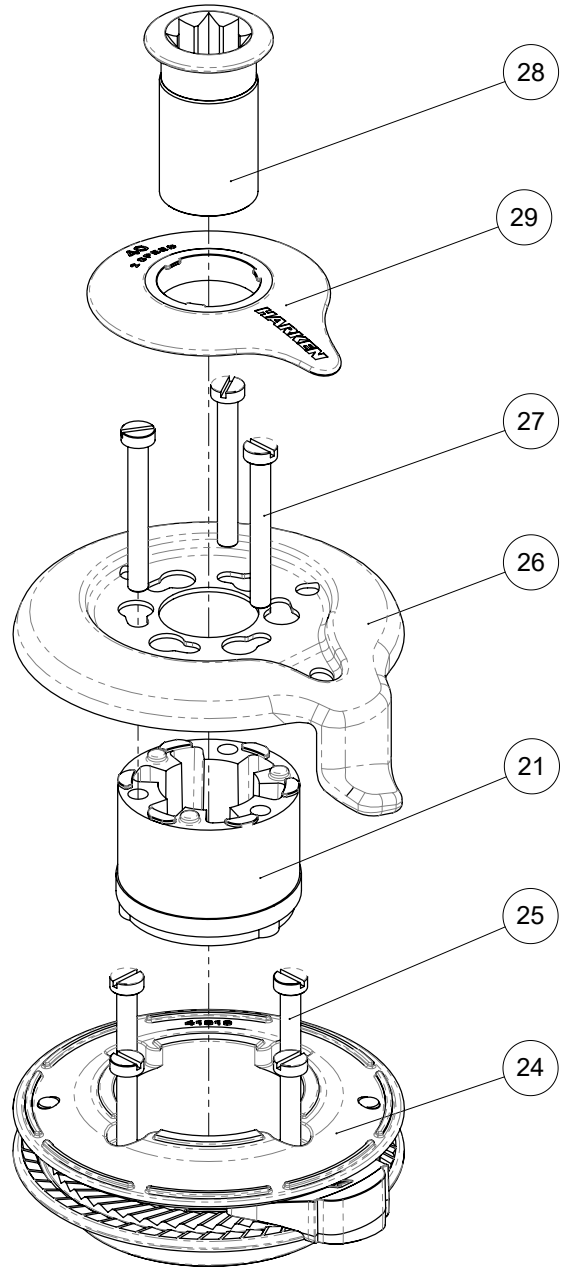
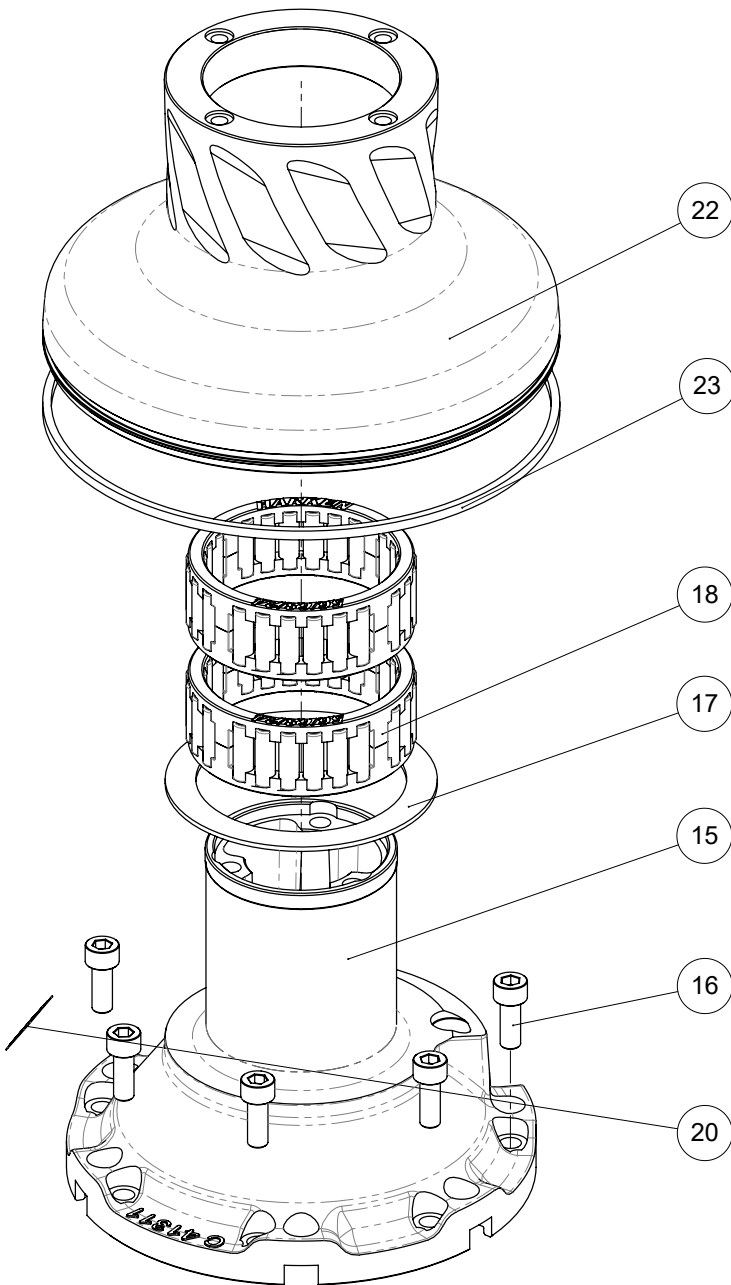
**Parts list Plate**



| Pos. | Q.ty | Code        | Description              |
|------|------|-------------|--------------------------|
| 1    | 1    | S 688540052 | Plate                    |
| 2    | 1    | S 688560002 | Drive Line               |
| 3    | 1    | M 0602803   | Nut M10 UNI5588          |
| 4    | 5    | M 0624203   | Screw M6x30              |
| 5    | 1    | M 0611703   | Washer 10.5 U†751 DIN127 |

**Parts list Winch**





| Pos. | Q.ty | Code       | Description   |
|------|------|------------|---|
| 1    | 1    | A94141300  | Winch 40 Base Assy<br>Winch Serial Number Sticker   |
| 2    | 1    | A97419200  | Assembly Skirt Traction Winch 500   |
| 3    | 1    | S413020004 | Gear Z12  |
| 4    | 1    | S413030004 | Pawls Carrier Ø8xN2*  |
| 5    | 4    | S000080003 | Pawl Ø8**   |
| 6    | 4    | S000380001 | Pawl Spring dia 8**   |
| 7    | 1    | S412830041 | Gear Z23  |
| 8    | 1    | S657380004 | Pin   |
| 9    | 1    | S279090002 | Washer 36x9,5x1*  |
| 10   | 1    | S412970004 | Gear Z20  |
| 11   | 1    | S657370041 | Pinion Z13  |
| 12   | 1    | S413120002 | Washer Ø22.5xØ45x1*   |
| 13   | 1    | S413070004 | Pin   |
| 14   | 1    | A94130500  | Assy - Gear Z20   |
| 15   | 1    | A94141500  | Assy - Housing Winch 40   |
| 16   | 6    | M0635103   | Socket head screw M6x16 UNI 5931*   |
| 17   | 1    | S413150082 | Washer Ø62xØ80x1.5*   |
| 18   | 2    | A74136000  | Bearing Ø56xØ68x24*   |
| 19   | 1    | A94139000  | Assy - Central Shaft W36/40   |
| 20   | 1    | S418760063 | Winch Serial Number Sticker   |
| 21   | 1    | S4129400A0 | Stripper arm support  |
| 22   | 1    | S414170053 | Drum A W40  |
| 23   | 1    | S281680097 | Red line  |
| 24   | 1    | A94131800  | Assy - Winch 40 Jaws<br>Lower Jaw W35/40<br>Upper Jaw w35/40<br>Peeler W20-40<br>Spring       |
| 25   | 4    | M0601803   | Screw UNI EN ISO 1207:1996 - M6x35 - A4*  |
| 26   | 1    | S414200019 | Stripper Arm W35/40   |
| 27   | 3    | M6007103   | Screw M6x50 UNI6107*  |
| 28   | 1    | A94136400  | Assy - Socket W20-80<br>Screw M8x20 UNI 6109*<br>Washer Ø7.7xØ25x5.8*<br>Socket Handle W20/80 |
| 29   | 1    | S4141900A5 | Cover 2 speed W40   |
| 30   | 1    | M603370094 | Bushing   |

(\*) see website [www.harken.com](http://www.harken.com)

(\*\*) Available with service kit BK4512;



## Traction Winch 500

### Assembly

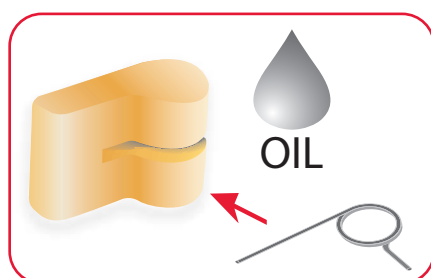
Assemble the winch in the reverse order of the sequence in the section on disassembly.  
To tighten bolts, use the torque indicated in the disassembly procedure.



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.  
In case of doubt concerning the assembly procedure contact Harken®  
Tech Service: [techservice@harken.it](mailto:techservice@harken.it)

### HANDLING

Protect against extreme temperatures: less than  $-10^{\circ}\text{C}$  or more than  $+50^{\circ}\text{C}$

Extreme heat may distort composite parts.

Extreme cold can cause the material to become brittle and cause the lubrication to congeal.

### STORAGE

Store in clean/dry place

Avoid impact which could damage jaws and skirt; ensure good packaging when shipping.

## Traction Winch 500

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### MAINTENANCE SCHEDULE

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**Owner name**

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**Product name and Model**

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**Serial Number**

---

**Year of manufacture**

---

**Date of purchase**

---

**Date of first use**

---

**Maintenance interval**

Annual

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**HARKEN®**

***Manufacturer***

**Harken Italy S.p.A.**

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Web: [www.harken.it](http://www.harken.it)

Email: [info@harken.it](mailto:info@harken.it)

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### **Worldwide Limited Warranty**

Refer to the Harken World Limited Warranty on the website at:

***<http://www.harkenindustrial.com/>***

The product warranty is accepted only if it has been maintained as specified in this Manual by Harken authorized personnel and is accompanied by Maintenance Schedule properly compiled