RIGGERS WINCH 200

Installation Manual – Intended for specialized personnel or expert users

INRW200_A 03/19



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Please read these instructions carefully before installing, servicing, or operating the equipment.

This manual may be modified without notice. In the event of this manual being translated, the English version is definitive. For latest manual revision go to www.harkenindustrial.com/manuals

Safety Precautions

Service Manual

You can download the Service Manual from www.harkenindustrial.com/manuals. This manual is for use only by specialized personnel. Installation, disassembling and reassembling by personnel who are not experts may cause serious damage to property or injury to users and those in the vicinity of the product. Harken® accepts no responsibility for damage or harm caused by not observing the safety requirements and instructions in the service manual. See limited warranty, general warnings, and instructions at www.harkenindustrial.com/manuals.

Introduction

This manual gives technical information on installation and service. If you do not understand an instruction, contact Harken®.



DANGER! This indication alerts you to imminent hazards that will kill or seriously injure you and others if you don't follow instructions. The message will tell you how to reduce the chance of injury.



WARNING! This indication alerts you to potential hazards that may kill or seriously injure you and others if you don't follow instructions. The message will tell you how to reduce the chance of injury.



CAUTION! This indication alerts you to potential hazards that may hurt you and others if you do not follow instructions. The message will tell you how to reduce the chance of injury.



WARNING! Strictly follow all instructions to avoid potential hazards that may kill or hurt you and others. See www.harkenindustrial.com/manuals for general warnings and instructions.



This product, as supplied by Harken®, is considered to be applicable to general lifting operations. Should this product be incorporated into systems for lifting persons, it becomes "partly completed machinery" and, when appropriate additional safety devices are added, must be certified for its intended application. Such systems are classified as "machinery for lifting persons" and would require separate CE marking.



Please read these instructions carefully before operating equipment.

Keep these instructions in a safe place for future reference.

CONTENTS SUPPLIED

Part No.	Description	Quantity
A96889300	20STA Harken Radial Winch	1
F83256700	B10AL Harken Winch Handle (lock-in)	1
A96885500	Plate	1



A. USE

Harken® Riggers Winch 200 is designed to be used as a manually powered, rope-handling winch secured on a universal mounting plate, for lifting, lowering and pulling loads.

B. LIMITATIONS

DO NOT USE:

- With wire rope
- With loads in excess of the maximum working load of 200 kg for lifting loads.

C. TRAINING

This equipment must be installed and used by persons trained in its correct application and use.

D. STANDARDS

This product/system has been certified to EN13157 standards.

E. TESTING

Maximum working loads are 4:1 coefficient ratio of the breaking load.



WARNING! As reported in the Directive 2009/104/EC "Persons may be lifted only by means of work equipement and accessories provided for that purpose. Without prejudice to Article 5 of Directive 89/391/EC, exceptionally, work equipment which is not specifically designed for the purpose of lifting persons may be used for that purpose, provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice providing for appropriate supervision".



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.

DESCRIPTION

Lightweight CE certified portable winch, mounted on an adaptor place.

The winch can be utilized in many applications; from utility masts, telecoms, marine, wind-turbine transition piece, davits, stage and theatre rigging.

The adaptor plate can be affixed in a number of ways, dependant on the environment and industry; these include ratchet straps, fibre slings and strops and karabiners. This makes for a truly universal and adaptable lifting solution.

FEATURES

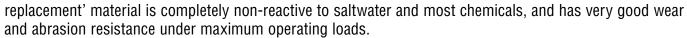
Maximum Grip – The drum's gripping surface is designed specifically to work with the drum diameter and material to maximize gripping power and reduce rope wear. Diagonal ribs stop the rope from rising (keeping rope wraps on part of drum where you have the best control), prevent overrides, and provide a smooth controlled release as rope exits the winch.

Spring-loaded, self-tailing jaws adjust under rope pressure to accept a variety of rope diameters. Teeth grip evenly with or without load.

Lightweight – overall weight only 3.6 kg

Powerful – Up to 20:1 power ratio with ratcheting handle for confined spaces.

Reliable & Easy to Maintain – Composite roller bearings and bushings don't require lubrication and have excellent corrosion resistance. This 'metal-



Load-carrying gears and pins are 17-4PH stainless steel for strength and durability.

Planetary gears are bronze to avoid stainless-on-stainless galling.

Winches can be disassembled and serviced on the mounting plate.

Easy Line Control - Locking jaws hold loaded rope securely during operation and while suspended. The stripper arm is shaped to smoothly feed the rope in and out of the jaws so the operator can use both hands to turn the winch. The stripper arm adjusts to multiple positions after the winch is mounted so rope exit position can be optimized.

SPECIFICATIONS

Maximum Working Load:

Winch: 200 kg Break Load: 2000 kg



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

Riggers Winch 200

		Win	ch Ø						Rope	entry	Rop	e Ø			Gear	Powe	r ratio
Part	Drun	n (D)	Bas	e (B)	Heigl	ht (H)	We	ight	heigh	t (LE)	(Min -	· Max)	Pla	te Ø	ratio	(Handle	length)
No.	in	mm	in	mm	in	mm	lb	kg	in	mm	in	mm	in	mm	1	8"	10"
INRW200	27/8	73	53/8	137	67/32	158	7.9	3.6	213/16	71	1/4 - 1/2	6 - 12	77/8	200	2.76	15.36	19.20



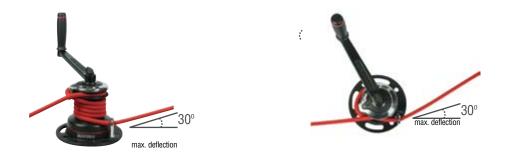
A. PLAN INSTALLATION

The adapter plate can be affixed in a number of ways dependant on the environment and industry; these include ratchet straps, fibre slings and strops and karabiners, making for a truly universal and adaptable lifting solution.

It is the installer's responsibility to carry out all structural tests needed to ensure that the mounting surface can withstand the load.

Lifting Rope - Entry Angle

The winch plate must be installed so that the line can be led through the rope guide 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 rope guide should not take any significant angle load. (See diagram)





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 rope guide

Mounting Plate - Attachment

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

The following illustrate some possible ways that the plate can be mounted.

Riggers Winch 200 - Location

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

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

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

The following illustrate some possible ways that the plate can be mounted.















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

Pre-Use Checks

- 1) Check plate for damage (excessive wear, cracks, deformation)
- 2) Check underside of plate;
 - a)5 fasteners around central hole, recessed 1 mm approx.
 - b)Rope guide end recessed 1 mm or less.
- 3) Winch base securely fastened to plate (small amount of play between winch drum and base is normal)
- 4) Rope guide is pointing away from drum (as per diagram)
- 5) Stripper arm is positioned correctly depending on orientation of plate
 - a) Wedge is correctly positioned behind stripper arm (see diagram)
- 6) Winch drum can be turned by hand clockwise
- 7) Winch drum cannot be turned by hand counter-clockwise
- 8) Handle can be inserted in winch and lock-in mechanism prevents accidental removal
- 9) Handle can be rotated in both directions, resulting in the winch drum rotating on counter-clockwise handle rotation





PERSONAL PROTECTIVE EQUIPMENT

Wear gloves to protect against rope abrasion or chafe when operating winch.

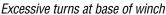
LIFTING LOAD



IMPORTANT! Keep fingers, loose clothing, hair etc away from winch. Area around winch handle should be kept clear of people and objects at all times. Be sure to keep loose rope near winch to prevent tripping.

1. Feed the rope through the rope guide and, starting at the base of the winch, wind rope onto drum in a clockwise direction. Use at least four complete turns, but no more than six, depending on rope diameter. Excess turns may cause rope to override or may cause excessive friction. (See images).











WARNING! Always put a minimum of 4 turns on winch drum. Fewer turns can severely decrease holding power which may result in rope slippage or failure to hold load, causing lifted load to fall, possibly resulting in severe injury or death.



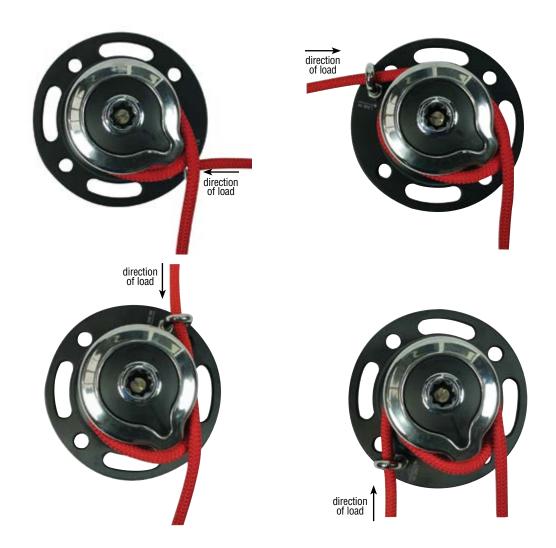
WARNING! Never allow rope to override on winch drum. This can cause rope to jam and can prevent load from being lifted/lowered. Tension on loaded rope must be relieved to clear override. This procedure carries a risk of serious injury or death if load drops or becomes uncontrollable.

2. Pull rope through to take up any slack, then load into spring-loaded, self-tailing jaws by winding rope clockwise and pulling tight to engage. Self-tailing jaws act as locking mechanism so operator does not have to pull rope in or let it out while rotating the handle.



WARNING! Rope must be securely pulled into self-tailing jaws. Do not rely solely on rope turns to hold load. Stripper arm must be positioned correctly so that the weight of rope or any other force does not cause the rope to be pulled out of the jaws (*see images overleaf*). Check that rope remains secured in self-tailing jaws while cranking.

Failure to secure rope in jaws may cause rope slippage which can cause lifted load to fall, possibly resulting in severe injury or death.



3. Begin turning handle counter-clockwise. Gears engage automatically depending on direction handle is rotated.

Rotate drum: rotate handle counter-clockwise

Ratchet handle: rotate handle clockwise

Rotating the handle through a series of complete revolutions is the most efficient way to operate. A back and forth action through a smaller arc can be used for confined spaces if required.

Gears engage Drum rotatesr

Gears disengage Handle ratchets

LOWERING LOAD

We recommend using a safety device, such as a grab-rope mechanism (eg. Prussic knot, rope-grab clutch).

- 1. Engage grab rope mechanism or clamp rope turns on drum with your hand.
- 2. Carefully unwind rope from self-tailing jaws only, while maintaining even tension on rope.
- 3. Do not take rope turns off winch drum until rope is completely unloaded.



WARNING! Use caution when lowering load using winch. Carefully hold rope when it is out of self-tailing jaws. Rope tail must not be released. Releasing rope tail will result in rope slippage, causing the load to fall, possibly resulting in severe injury or death.

INSPECT BEFORE EACH USE

A formal inspection of the winch and its connection to the structure must be performed at least annually by a knowledgeable person other than the user. The inspection should be recorded in an inspection and maintenance log.

BEFORE EACH USE

Inspect winch and self-tailing jaws for degradation, cracks, or wear that may affect locking strength and operation. Check lifting rope to make sure that it is free from wear. If in doubt, replace with a suitably strong rope.

HEAVY USE/HARSH ENVIRONMENT

In addition to inspection before each use, a detailed monthly inspection of the unit is recommended. If unit is under heavy use and/or in a harsh environment inspect and lubricate frequently.

Maintenance

WASH

Wash 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

Winch must be completely overhauled, cleaned, and lubricated at least every 12 months. Harsh environment and/or heavy use may require more frequent maintenance.

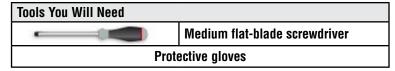
After inspection, replace worn or damaged components with genuine Harken parts. Do not replace or modify a Harken® Riggers Winch 200 with a part that was not designed for it.



CAUTION! Periodic service must be carried out regularly. Lack of adequate maintenance shortens the life of the Harken® Riggers Winch 200, can cause serious injury and also invalidate the warranty. Installation and maintenance of Harken® Riggers Winch 200 must be carried out exclusively by trained personnel.

DISASSEMBLY

To inspect the winch you must remove the drum.





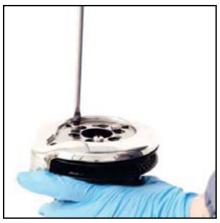
Torque to apply when assembling



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



2. Slide off the hub n°20 and the cover n°19



3. Unscrew the three screws n°17 (4 Nm/35 in-lb)



4. Remove the self-tailing arm n°18 by rotating and lifting it.



5. Lift off the drum n°13



6. Completely unscrew three screws n°17



7. Remove the self-tailing arm support n°12 and slide out the bushing



8. Slide out the central shaft n°7



9. Remove the pin n°6

Disassembly



11. Slide off gear n°3

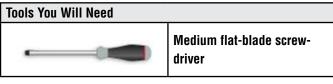


12. Slide off gear n°11



13. Unscrew the screw n°10 and remove the washer n°9. (4 Nm/35 in-lb)

REPLACING SELF-TAILING JAWS



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



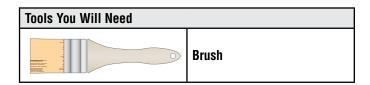
Torque to apply when assembling



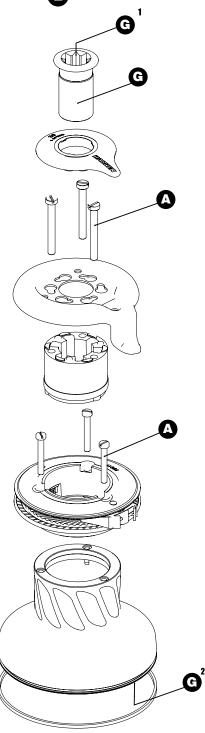
1. Unscrew the 3 screws n°16 (\alpha 4 Nm/35 in-lb)



2. Remove jaws n°15.



- Anti-seize
- Harken® Grease
- Harken® Pawl Oil
- Loctite[®] 270

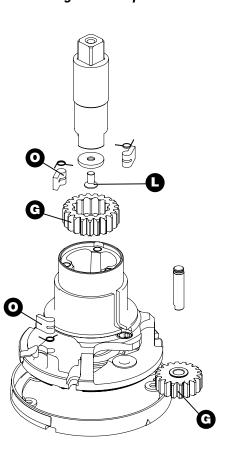


CLEAN

- 1. Use degreaser to soak metal components. Rinse plastic parts in fresh water.
- 2. Dry parts with rags that do not leave residue.
- 3. Inspect gears, bearings, pins, and pawls for any signs of wear or corrosion.
- 4. Carefully check teeth of gears and ring gears to make sure there are no traces of wear.
- 5. Check roller bearings to ensure there are no breaks in bearing cages.
- 6. Replace worn or damaged components. See Pages 15 17 for exploded diagrams and parts list.

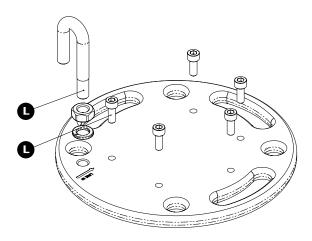
LUBRICATE

- 1. Carry out maintenance on components using products listed and shown below on exploded view.
- 2. Use brush to lightly lubricate all gears, gear pins, teeth, and all moving parts with Harken Grease.
- 3. Lightly lubricate pawls and springs with Harken Pawl Oil. *Do not use grease on pawls!*





BK4521



SPARE PARTS

Spare parts can be ordered from Harken as described in the Harken Worldwide Limited Warranty using the part number in the Parts List and the serial number of the winch, which is printed on a label on the drum support and on the plate.



Assembly

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

To tighten bolts, use torque indicated in disassembly procedure.



When positioning stripper arm, align peeler with it.

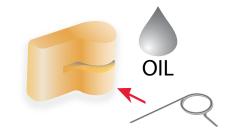


If jaws have been disassembled, insert peeler between two jaws, taking care that letters "TOP" on peeler are facing upwards.

ASSEMBLE PAWLS

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

If you have questions concerning the assembly procedure contact Harken® Tech Service: techservice@harken.it.



ASSEMBLY PLATE PROCEDURE

Tools You Will Need					
	Medium flat-blade screwdriver				
	Allen Key #5				
Protective gloves					



Torque to apply when assembling



1. Install nut on rope guide. NOTE. Rope guide should be installed with no thread locker.



2. Wind rope guide into mounting hole (adjacent to "line in" arrow) as far as possible without it protruding through the plate.



3. Wind nut back down onto plate to lock rope guide in place with the end of the rope guide pointing away from centre of plate.



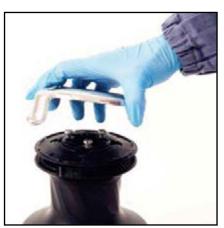
4. Remove winch handle socket.



5. Slide off the hub n°20 and the cover n°19



6. Unscrew the three screws n°18 (4 Nm/35 in-lb)



7. Remove the self-tailing arm n°17 by rotating and lifting it.



8. Lift off the drum n°13



9. Note down serial number of winch and record



10. Mount winch to plate using 5 x M5 bolts. Blue Loctite (243) should be used.



NOTE. To obtain correct Maximum Working Load (MWL), all five bolts, must be securely tightened (8 Nm/71 in-lb) into plate.



WARNING! Failure to use correct number of mounting fasteners and/or failure to tighten them correctly can result in winch pulling off suddenly and unexpectedly during high loads, which may cause load to drop, possibly resulting in severe injury or death.



11. Reassemble drum, stripper arm and socket. When the rope guide is at 7 o'clock, the stripper arm should point to 11 o'clock (330 degrees approx).

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 info@harkenindustrial.com



WARNING! Winch can only be aligned one way. Ensure stripper arm is aligned correctly according to the diagram. Incorrect alignment of the stripper arm can cause the rope to fall out of the jaws, leading to release of load, possibly resulting in severe injury or death.



WARNING! Ensure rope guide is aligned correctly according to the diagram. Misalignment of the rope guide can cause rope overrides, and loading stress, leading to loss of control, possibly resulting in severe injury or death.

Handling

Protect against extreme temperatures: -10° C to +40° 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 damage which could damage jaws and skirt; ensure good packaging when shipping.

Manufacturer — Harken Italy S. p. A.

Via Marco Biagi, 14, 22070 Limido Comasco (CO) Italy Telephone: 031.3520031

Web: www.harken.it, Email: info@harken.it

EC Declaration of Conformity

Harken UK Ltd, EU Representative declares that the product described hereafter:

Riggers Winch 200 - INRW200

complies with the essential requirements of the Machinery Directive 2006/42/EC and carries the appropriate CE marking.

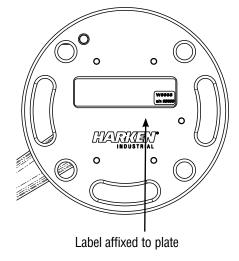
Compliance has been demonstrated with reference to the harmonized standard;

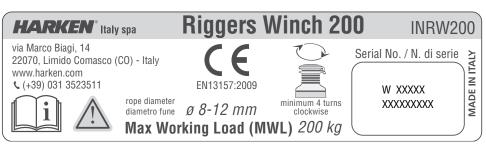
BS EN 13157:2009 Cranes — Safety - Hand powered lifting equipment

A technical file is retained for this equipment by the authorized manufacturer.

Done at:	On:			
Harken UK LTD	9th Apr 2015			
Signature Out Bu V	Name Harken UK Ltd Bearing House, Ampress Lane Lymington SO41 8LW			
Catherine Ash-Vie	England			

Explanation of Label

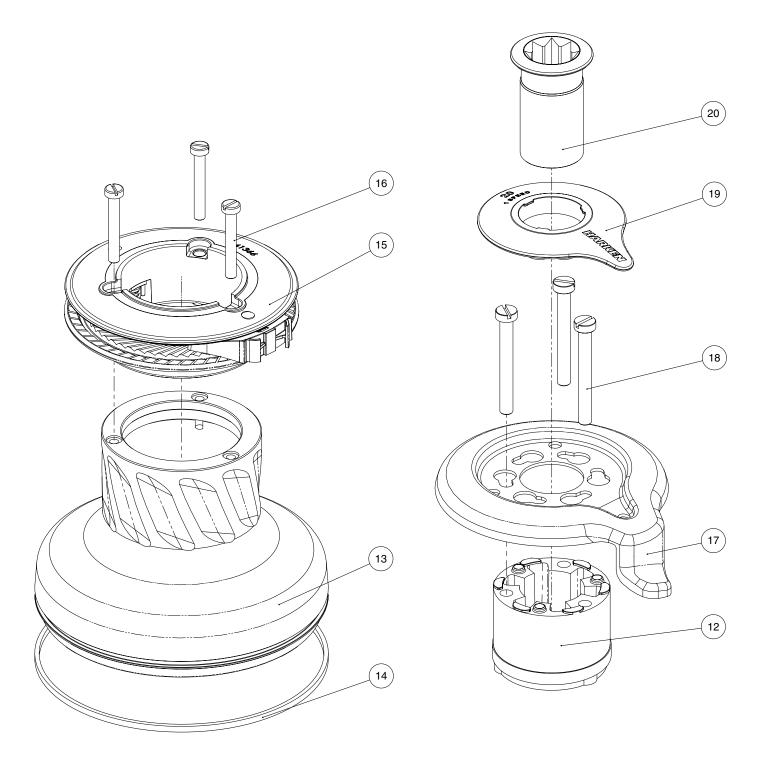




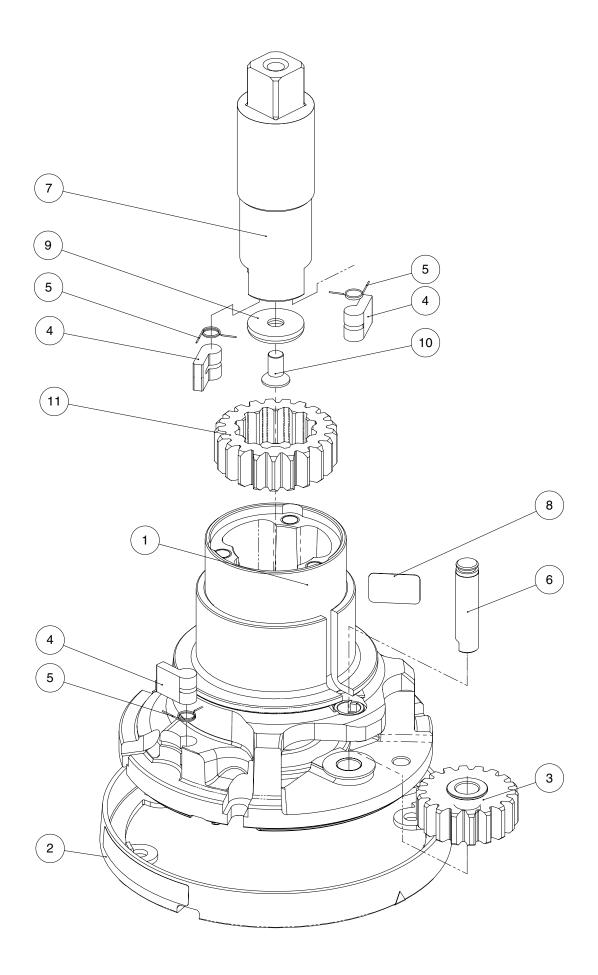
1		2				
3	5					
4	8	6	7			

- 1. Manufacturer's name
- 2. Product name and code
- 3. Manufacturer's address
- 4. Pictogram instruction to read the manual
- 5. CE marked and tested to EN13157:2009 standard
- 6. Safety instruction to put a minimum of 4 rope wraps clockwise around drum; minimum rope diameter is 8 mm, maximum rope diameter is 12 mm
- 7. Serial number in format: wxxxx last two numbers of the year of production (i.e. 10 = year 2010)
- 8. Load limits

EXPLODED VIEW 1/2



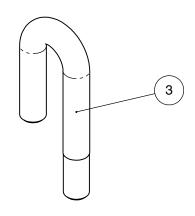
EXPLODED VIEW 2/2

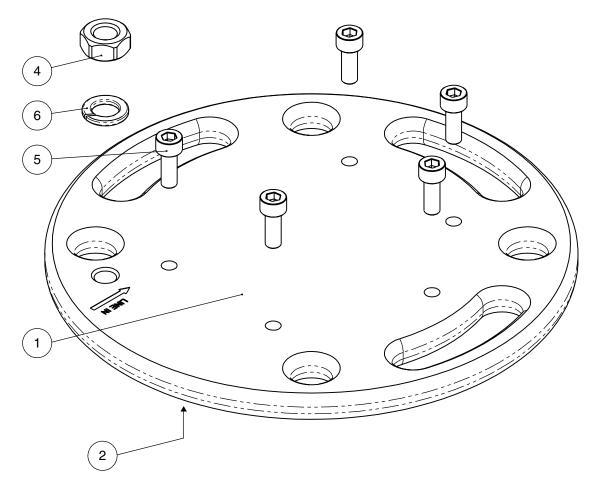


Riggers Winch 200

Pos.	Q.ty	Code	Description				
1	1	A 941369 00	Assy Housing Winch 20 Housing W20 Bushing Ø9xØ11x9* Bushing Ø9xØ11x12* Heli-coil M6x9 Bushing Ø55xØ62x34* Washer Ø33.5xØ58x5.5 Bushing Ø28xØ33x25*				
2	1	A 941386 00	Assy Skirt Winch 20 Skirt W20				
3	1	A 941367 00	Assy Gear Z18 Gear Z18 Bushing Ø9xØ11x7*				
4	4	S 00008 00 03	Pawl Ø8*				
5	4	S 00038 00 01	Pawl Spring Ø8*				
6	1	S 41370 00 04	Pin				
7	1	S 41363 00 02	Shaft Winch 20				
8	1	S 41876 00 63	Winch Serial Number Sticker				
9	1	S 268890080	Washer				
10	1	M 06040 03	Screw M6x12 UNI 5933*				
11	1	S 41362 00 41	Gear Z21				
12	1	S 41294 00 A0	Stripper arm support				
13	1	S 41356 00 53	Drum W20				
14	1	S 28167 00 97	Red line*				
15	1	A 941365 00	Assy Jaws W20 Lower Jaw W20 Upper Jaw W20 Peeler W20 Spring				
16	3	M 6009103	Screw UNI EN ISO 1207:1996 - M5x35 - A4*				
17	1	S 41357 00 19	Stripper Arm W20				
18	3	M 6007103	Screw M6x50 UNI6107*				
19	1	S 41358 00 A5	Cover 1 Speed W20				
20	1	A94136400	Socket Assy W20 Socket Handle W20 Washer Ø7.7xØ25x5.8 Screw M8x20 UNI 6109*				

^{*}Service kit available; see winch kit section on the website www.harken.com





Pos.	Q.ty	Code	Description
1	1	S 688550052	Plate Riggers winch 200
2	1	S 688590063	Sticker Riggers winch 200
3	1	S 688570002	DRIVE LINE
4	1	M 0602803	Nut M10 UNI5588
5	5	M 0635103	Socked head screw M6x16 UNI 5031
6	1	M 0611703	Washer 10.5 U1751 DIN127