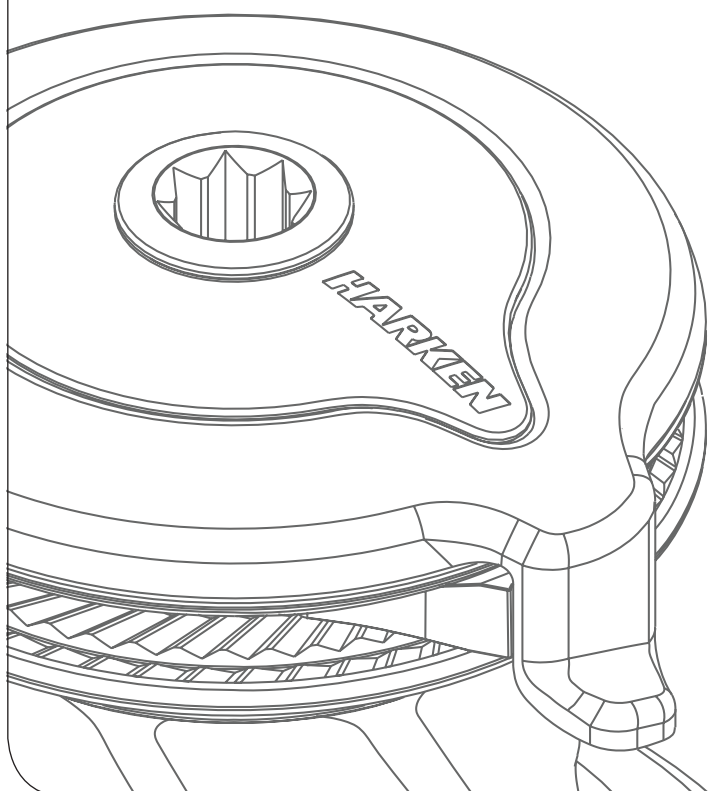


Installation and Maintenance Manual

MRW-05

Radial Winch 80.2 ST



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	28,85 : 1	9,94 : 1
2nd speed	93,24 : 1	32,12 : 1

The theoretical power ratio does not take friction into account.

Weights

	ST A version	ST C version
Weight (Kg)	21,2	28,8

Versions: A = drum in anodised aluminium; C = drum in chrome bronze

Maximum working load

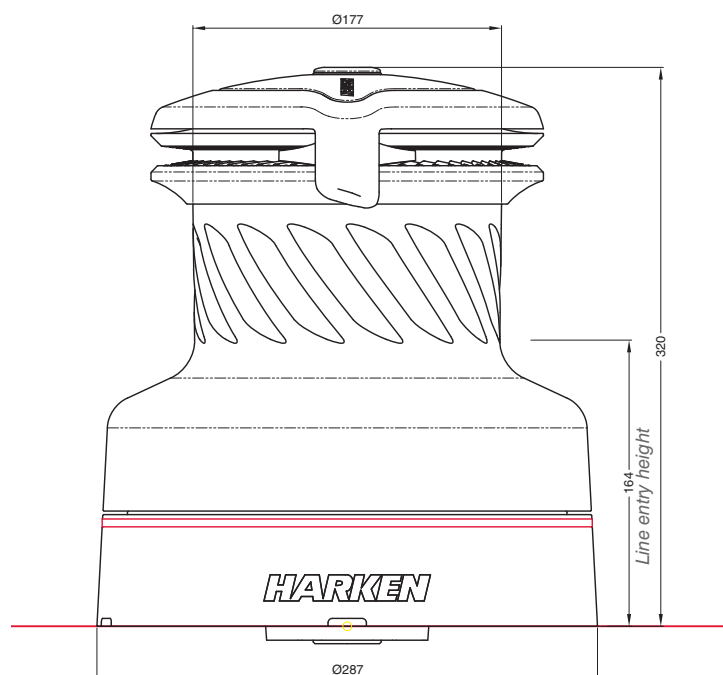


WARNING!

The maximum working load (MWL) for the 80.2 ST Radial Winch is 4500 Kg (9920 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.



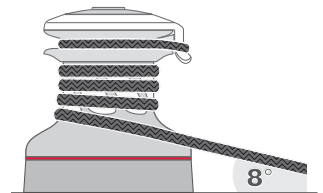
WARNING!

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!

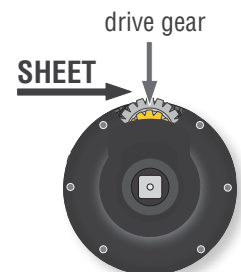
Verify the entry angle of the sheet. This must be 8° with tolerance of $\pm 2^\circ$, to avoid sheet overrides and damaging the winch or making the winch inoperable leading to loss of control of the boat which can lead to severe injury or death.



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.

Installation Procedure

To install the winch you must follow and complete the Disassembly procedure.

Disassembly Procedure

To install the winch you must remove the drum and use Socket Head (SH) bolts.

Tools needed:

One medium flat-bladed screwdriver

A number six hex key

Rags

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 (⚙️ 2Nm/18 in-lb)



2. Slide off the assy socket n°39



3. Slide off the assy cover n°38



4. Unscrew the three screws n°37 (⚙️ 4Nm/35 in-lb) and remove the stripper arm n°36 by rotating and lifting it.



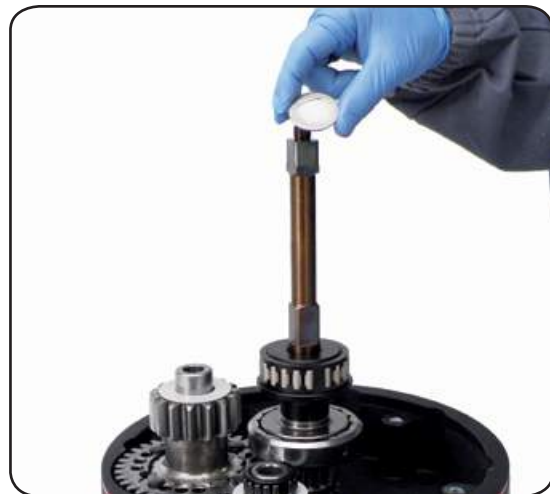
5. Lift off the drum n°15



6. Completely unscrew the six screws n°25
($\approx 20\text{Nm}/177\text{ in-lb}$)



7. Lift off the assy housing n°18



8. Slide out the washer n°24



9. Slide out the inner spacer n°34 and the roller bearing n°23



10. Slide out the assy pinion n°32 and the spacer n°31



11. Disassemble the Assy pinion n°33 and the hub n°32



12. Slide out the shaft n°28



13. Remove washers n°30 and n°29

Important: The plastic washer must be positioned in contact with the winch base.



14. Slide out the roller bearing n°6 and the washer n°5



15. Slide out the washer n°5



16. Slide out the final drive pinion n°9



17. Slide out the gear n°10



18. Slide out roller bearings n°6 and washer n°8



19. Remove the shaft n°7



20. Remove the pinion n°13



21. Remove the gear n°14

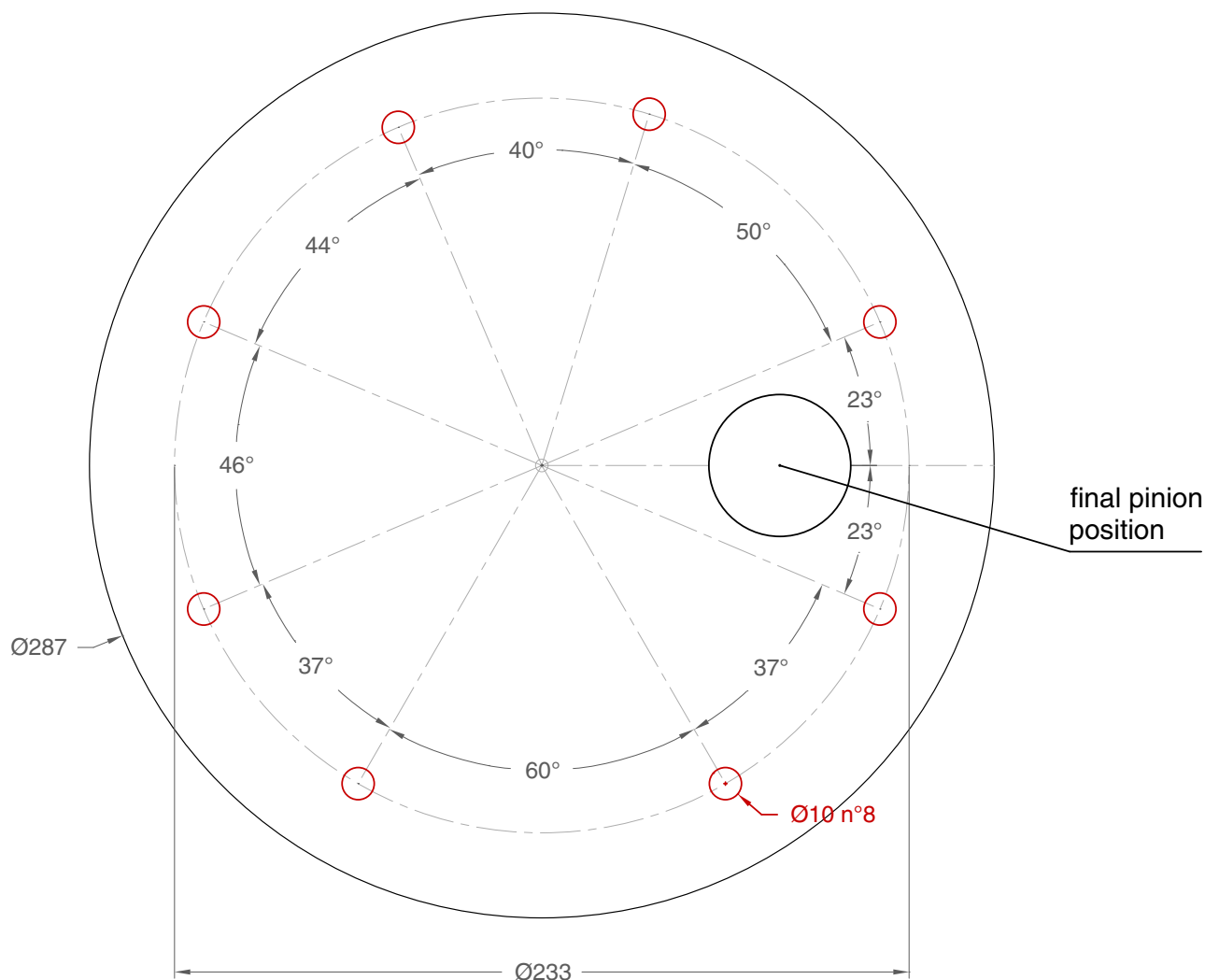


22. Remove the roller bearing n°6 and the washer n°11

Carry out Installation 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

B. Remove the winch and drill the eight 10.2 mm diameter holes.

C. Bolt the base of the winch to the deck using eight M10 Socket Head (SH) bolts (not supplied by Harken®), correctly chosen for the thickness and type of the boat deck. Consult the yard that built the boat in case of doubt.



WARNING!

To install the winch on the deck, use only bolts in A4 stainless steel (DIN 267 part11). Bolts made of other materials may not have sufficient strength or may corrode which can result in winch pulling off deck suddenly and unexpectedly during high loads causing severe injury or death.

NOTICE

To mount winches on the deck, do not use countersunk bolts.

- D. Fill the mounting holes with a suitable marine sealant.
- E. Remove the excess adhesive/sealant from the holes and base drainage channels
- F. Reassemble the winch following the steps in **Installation procedure** (page 5) 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.

MaintenanceWashing

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.

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

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

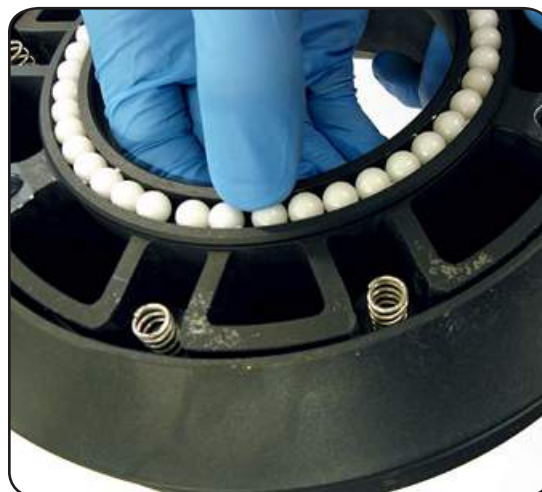


I. Unscrew the 3 screws n°17
($\approx 4\text{Nm}/35\text{ in-lb}$)



II. Remove the jaws

Inspect balls inside the drum and carefully check the correct position; if it is necessary to put back any balls, push balls in the race (as shown below):



Once the winch is completely disassembled, clean the parts: 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.

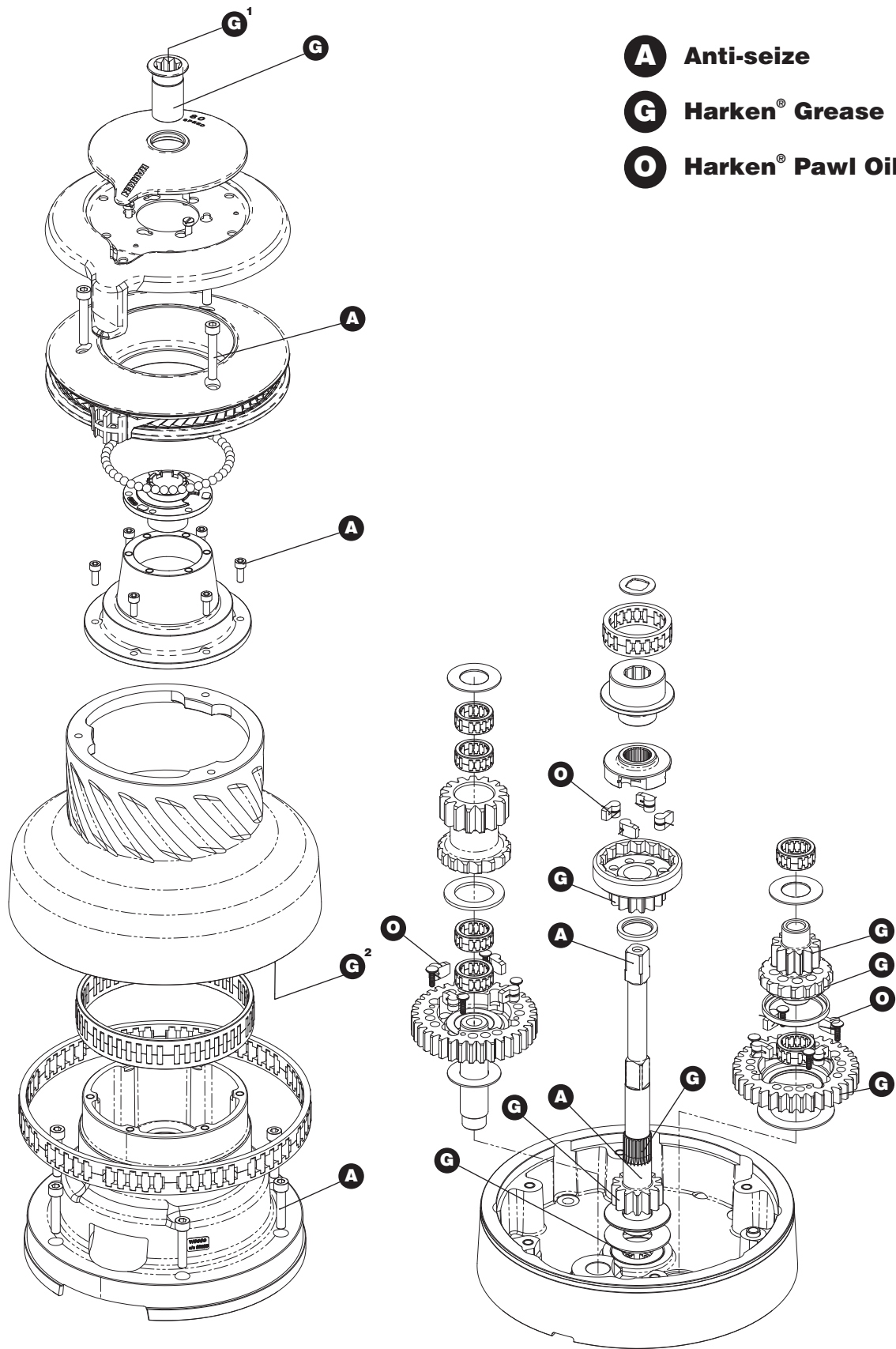
Carry out maintenance on components using the products listed below.

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

Assembly

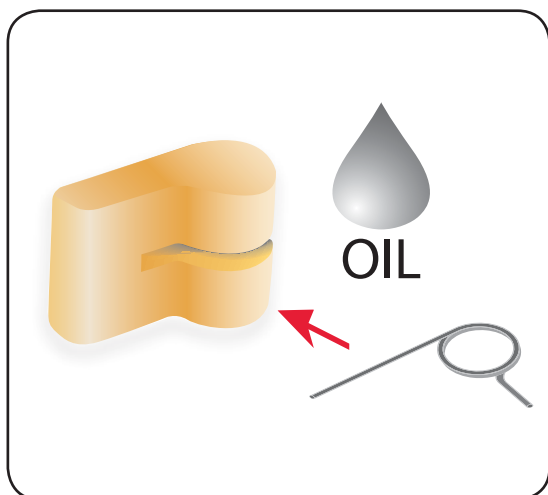
Make sure that the holes and drainage channels in the base of the winch are not obstructed
 Assemble the winch in the reverse order of the sequence in the section on disassembly.

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



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

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



To assemble the pawls

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

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
23570 Limido Comasco (CO) Italy
Tel: (+39) 031.3523511
Fax: (+39) 031.3535031
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

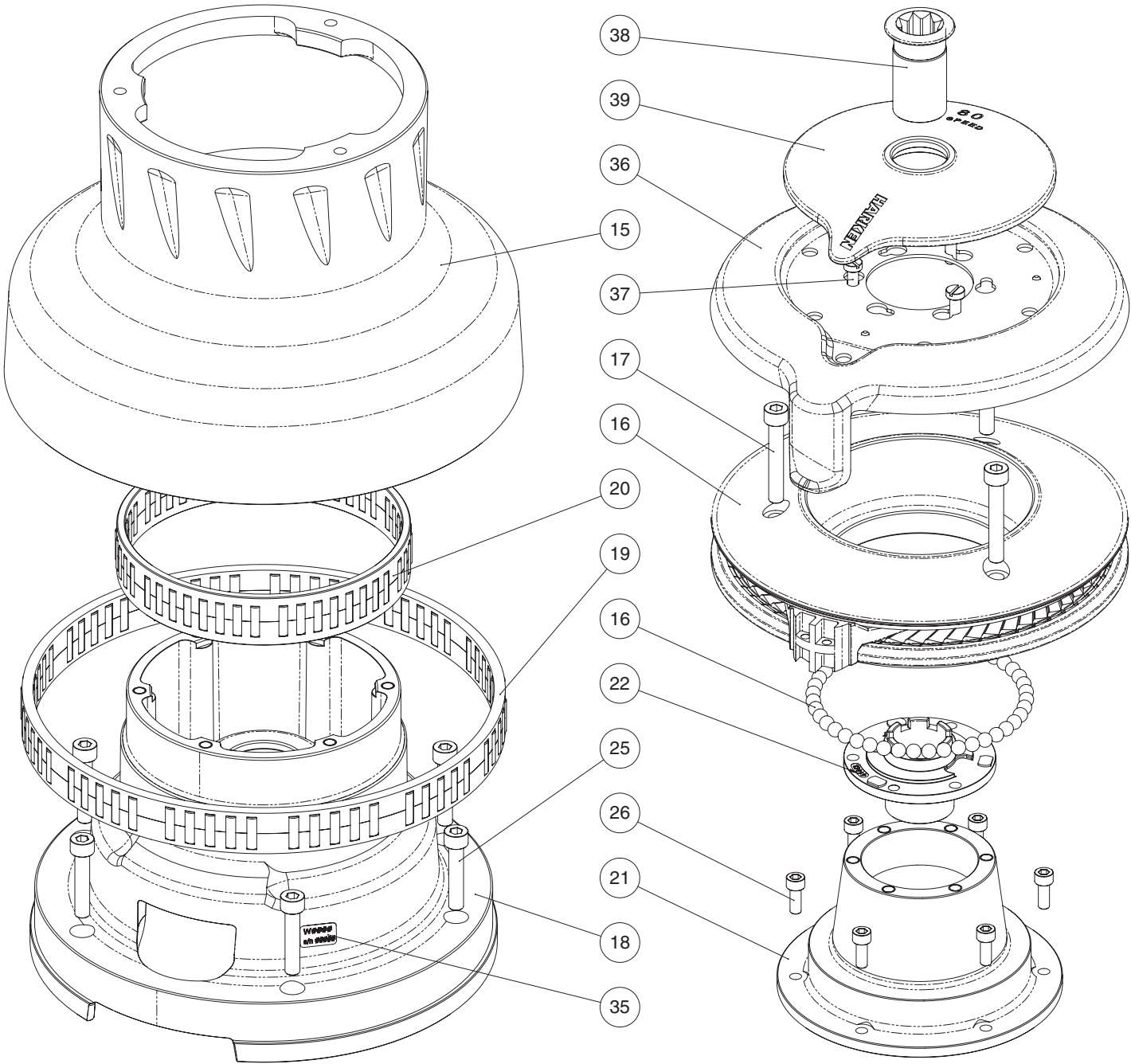
Harken®, Inc.

1251 East Wisconsin Avenue
Pewaukee, Wisconsin 53072-3755 USA
Tel: (262) 691.3335
Fax: (262) 691.3008
Email: harken@harken.com
Web: www.harken.com

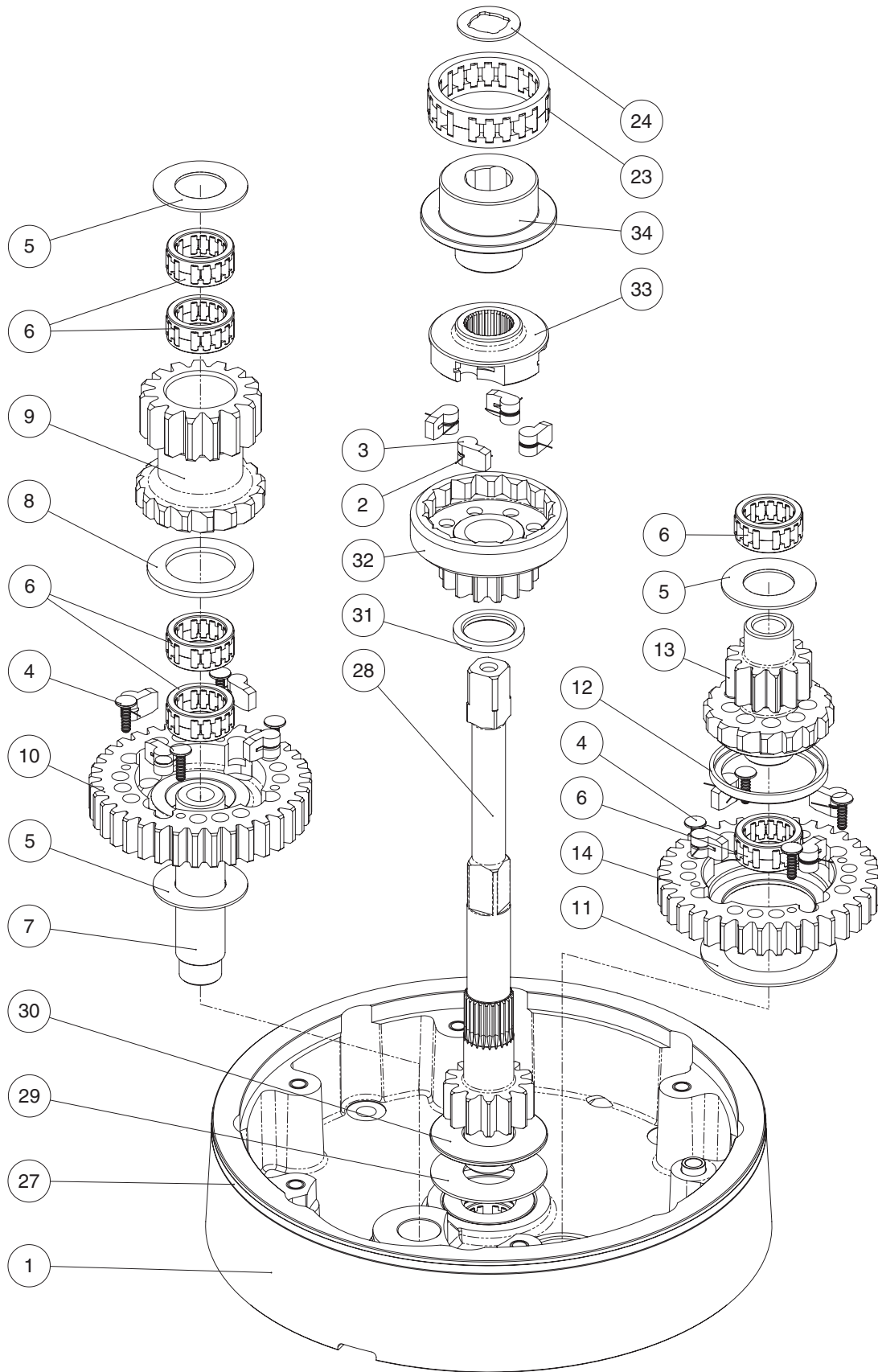
- **Tech Service**
Email: technicalservice@harken.com
- **Customer Service**
Tel: (262) 691-3335
Email: customerservice@harken.com

Exploded view

Radial Winch 80.2 STA, STC



Radial Winch 80.2 STA, STC



Parts List

Radial Winch 80.2 STA

A= drum in anodised aluminium

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description
1	1	A94158200	Base assembly	20	1	A74158900	Roller bearing Ø148x160x30
	1	A74506900	Base winch 80	21	1	A94159600	Assy flange
	1	S476030004	Bearing Ø25xØ35x15				Stripper arm support
	1	M0620697	Plug for instrumented base Ø13x4				Heli-coil M6x9
	1		Heli-coil M8x10	22	1	S4144300A0	Stripper Arm Housing W60/70
	1		Centering bushing Ø12	23	1	A73129200	ROLLER BEARING 50-62-20 ERTA P
	1		Heli-coil M10x10	24	1	S413880002	Washer Ø17.2xØ32x1.5
	1		Bush gear shaft Ø32xØ39x22	25	6	M0624603	Screw M8x40 UNI5931
	1		Bushing Ø39xØ32x22	26	6	M0635103	Socket head screw M6x16 UNI 5931
	1		Seal Ø25xØ47x7	27	1	S386550097	Red line
	1		Winch Product Sticker**	28	1	S416400004	Shaft Z13 W80
2	12	S285040001	Pawl Spring*	29	1	S434160081	Washer Ø59xØ26x1,5
3	12	S392440004	Pawl Ø10*	30	1	S402050004	Washer Ø25,2xØ61x2,4
4	8	HFS753	plug-pawl retainer	31	1	S405860080	Spacer
5	3	S434110081	Washer Ø48xØ26x1,5	32	1	A94055700	Assy Pinion Z14
6	6	A74506900	Bearing Ø25xØ35x15		1	S455420081	Pinion Z14
7	1	S405830004	Shaft -FD pinion		1		Bushing Ø24,5xØ28,5x27
8	1	S438860081	Washer Ø54xØ35,2x3	33	1	S405620004	Hub 2nd Ratchet
9	1	S405540004	Final Drive Pinion Winch 990	34	1	S415860080	Inner spacer
10	1	S405550004	Gear Z36 - Winch 990	35			Winch Serial Number Sticker
11	1	S434170081	Washer Ø69xØ45x1,5	36	1	A94159901	Kit stripper arm
12	1	S402260041	Bushing 4th.gear pinion				Stripper-arm W80
13	1	S405580004	Pinion 3rd speed				Pin
14	1	S423870004	Gear Z=36 - Winch 990 PR 80	37	3	M0601903	Screw M6x16 UNI1207
15	1	A74159000	Drum assembly W80	38	1	A94136400	Assy Socket W20-80
16	1	A94159200	Assy Jaws Winch 80		1	S415130085	Socket Handle W20/80
	6	S385970001	Upper Jaw ST W80		1	M0614303	Washer Ø7.7xØ25x5.8
	1	S6876800C0	Lower Jaw ST W80		1		Screw M8x20 UNI 6109
	44	M0610280	SPRING	39	1	S4160000B7	Cover W80.2 ST
			Peeler winch 80				
			Ball 5/16"				
17	3	M0624703	Screw M8x50 UNI5931				
18	1	A94158700	Assy Housing W80				
			Housing W80-1000				
			Bushing Ø39xØ32x22				
			Heli-coil M6x9				
19	1	A74059500	Roller Bearing lower 990				

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

**Winch product sticker



Radial Winch 80.2 STC

C=drum in chrome bronze

Pos.	Q.ty	Code	Description	Pos.	Q.ty	Code	Description
1	1	A94158200	Base assembly	20	1	A74158900	Roller bearing Ø148x160x30
	1	A74506900	Base winch 80 Bearing Ø25xØ35x15 Plug for instrumented base Ø13x4 Heli-coil M8x10	21	1	A94159600	Assy flange Stripper arm support Heli-coil M6x9
	1	S476030004	Centering bushing Ø12 Heli-coil M10x10 Bush gear shaft Ø32xØ39x22 Bushing Ø39xØ32x22	22	1	S4144300A0	Stripper Arm Housing W60/70
	1	M0620697	Seal Ø25xØ47x7 Winch Product Sticker**	23	1	A73129200	ROLLER BEARING 50-62-20 ERTA P
2	12	S285040001	Pawl Spring*	24	1	S413880002	Washer Ø17.2xØ32x1.5
3	12	S392440004	Pawl Ø10*	25	6	M0624603	Screw M8x40 UNI5931
4	8	HFS753	plug-pawl retainer	26	6	M0635103	Socket head screw M6x16 UNI 5931
5	3	S434110081	Washer Ø48xØ26x1,5	27	1	S386550097	Red line
6	6	A74506900	Bearing Ø25xØ35x15	28	1	S416400004	Shaft Z13 W80
7	1	S405830004	Shaft -FD pinion	29	1	S434160081	Washer Ø59xØ26x1,5
8	1	S438860081	Washer Ø54xØ35,2x3	30	1	S402050004	Washer Ø25,2xØ61x2,4
9	1	S405540004	Final Drive Pinion Winch 990	31	1	S405860080	Spacer
10	1	S405550004	Gear Z36 - Winch 990	32	1	A94055700	Assy Pinion Z14 Pinion Z14 Bushing Ø24,5xØ28,5x27
11	1	S434170081	Washer Ø69xØ45x1,5	33	1	S405620004	Hub 2nd Ratchet
12	1	S402260041	Bushing 4th.gear pinion	34	1	S415860080	Inner spacer
13	1	S405580004	Pinion 3rd speed	35			Winch Serial Number Sticker
14	1	S423870004	Gear Z=36 - Winch 990 PR 80	36	1	A94159901	Kit stripper arm Stripper-arm W80 Pin
15	1	A74159100	Drum assembly W80 C	37	3	M0601903	Screw M6x16 UNI1207
16	1	A94159200	Assy Jaws Winch 80 Upper Jaw ST W80 Lower Jaw ST W80	38	1	A94136400	Assy Socket W20-80 Socket Handle W20/80 Washer Ø7.7xØ25x5.8 Screw M8x20 UNI 6109
	6	S385970001	SPRING		1	S415130085	
	1	S6876800C0	Peeler winch 80		1	M0614303	
	44	M0610280	Ball 5/16"	39	1	S4160000B7	Cover W80.2 ST
17	3	M0624703	Screw M8x50 UNI5931				
18	1	A94158700	Assy Housing W80 Housing W80-1000 Bushing 39x32x22 Heli-coil M6x9				
19	1	A74059500	Roller Bearing lower 990				

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

**Winch product sticker

