

Original Instruction Manual

Carefully read these instructions
before starting and using your log winch!

Mechanical Logging Winch FSW 4.5 M / 5.5 M

- Set-up & installation
- Use
- Maintenance
- Accessories



BGU *maschinen*

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CE – Statement of Compliance
to the EC Machines Directive No. 2006/42, Annex II A and (Low Voltage)
Directive 2004/108

We hereby declare that the equipment described in this manual responds in full to the actual version brought on the market. We, the manufacturer further declare that this equipment was duly designed and manufactured in accordance with the actual European Safety and Health Standards settled by the relevant EEC directives as well as the latest electromagnetic standards issued by the European Council of 3.5.89 and later enforced by all member states. This statement of compliance does not apply to customer modifications of the equipment without manufacturer's written approval. The manufacturer shall not be responsible for such modified equipment and machines.

Machine type:: **Logging winch**

Models: **Mechanical FSW 4.5 M / 5.5 M**

Production No.: see model label

Applicable European Standards: EC Machine Directive (EC 42/2006)
and following amendments and additions
Low Voltage) Directive 2004/108

Other applicable Standards
and technical specifications: EN ISO 12100-1,
EN ISO 12100-2,
EN ISO 4254-1,
EN ISO 14492-1

29.12.2009

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Date



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Jörg Kernstock
Director

Official user's language: English

(User's release)

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User's manual

1. General information

Dear customer,

Thank you very much for your trust and preference in choosing our equipment and joining the number of our best customers in the world. We are confident that our equipment will be up to all your expectations and assure you a long lasting quality and performance.

Our log winches are available in two different versions of different skidding force.

FSW 4.5 pull force 4,5 tons mechanical operation system

FSW 5.5 pull force 5,5 tons mechanical operation system

All versions are designed and conceived for farming and logging applications. Any other use shall be considered non-compliant application.

The manufacturer accepts no responsibility for damages caused by non-compliant application. In this case the operation of the machine is completely at user's risk.

1.1 Delivery and transport claims

Upon delivery of the machine please check for visual machine damages such as damaged packing or scratched buckled parts. If so, make a remark on all copies of the delivery bill before signing for acceptance.

The truck driver must absolutely sign all copies of the delivery bill. Should your shipper or the truck driver refuse to accept your claim, fully reject delivery and make sure to inform us (the manufacturer) immediately. No claims shall be taken into account by the shipper or by the insurance company, if a reservation note is not made on the delivery bill.

All transport damages must be notified within latest 2 days from delivery. Therefore delivery must be collected and inspected within this term. Later claims shall be disregarded. In case of assumed but not visually clear transport damages make sure to mark the following sentence on the delivery bill: "Reserved delivery due to assumed transportation damages".

Insurance and shipping companies act with extreme caution in case of transport damages and sometimes refuse to accept any responsibility. Please make sure to provide clear and exhaustive evidence (photos) of the claimed damages.

Thank you in advance for your help and understanding in this matter.

2. Safety pictograms and warning labels

1. Warning label

„Never operate or install a winch without reading or understanding the operator’s manual“

This label reminds the user about the importance of reading and understanding the instructions of the manufacturer and getting familiar with the winch before first use.



2. Danger sign

“Keep yourself and others at safe distance from the dangerous area!”

This label reminds operator and bystanders of the dangerous area between the tractor and the winch.



3. Machine safety label

“ max 540 min”

This label shows the max number of revolutions and the direction of rotation of the driveshaft connecting the winch to the tractor.



4. Danger sign

„No hoisting!“

5. Machine operation sign

“Disconnect the winch, read and comply with manufacturer’s maintenance instructions.”

This is to remind the operator to familiarize himself with the maintenance procedures of the manufacturer contained in the user’s manual.



6. Identification label

„Product identification“

This label shows the company details of the manufacturer and the main machine technical data.



7. Identification label

„BGU-Maschinen“ manufacturer’s logo



8. Operator's safety label

„Wear steel-toe safety shoes“



3. Safety rules

Strictly perform installation, set-up, maintenance, cleaning and transportation of the winch with the power switched off and all moving parts motionless and secured against accidental operation.

The user shall strictly comply with these operation , set-up, maintenance, repair and trouble-shooting instructions in order to assure safe operation and no damages to the equipment. Moreover, we recommend to let the machine be run only and strictly by trained and skilled staff who must be familiar with the applicable occupational safety and health administration rules as well as applicable transportation rules.

No person under school leaving age should operate a forestry winch. Those who have reached school leaving age but are below the age of 18 may operate a forestry winch if supervised by a competent person of 18 years or over.

The machine shall be installed and kept in a suitable location selected by the customer for safest operation. The working area around the machine must be kept as clear as possible from surrounding obstacles and slippery foundation floors should be duly treated (do not use saw dust or wood ash for this purpose).

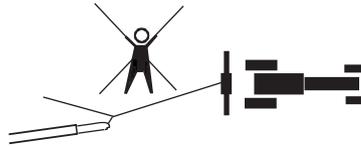
Make sure that the equipment stands on a safe stable foundation.

- Due and proper illumination of the working site must be provided at all times.
- Set up the machine on a firm surface and ensure that a wide but confined area is available around the machine assuring maximum working freedom.
- Mind all operation signs and warning labels on the winch and comply with the instruction given herein.
- Operators must wear steel toe safety shoes, working protective gloves, protective helmet and snug-fitting, tear-resistant work cloths.
- Never leave the forestry winch unattended
- Before switching power on and putting the winch to work make sure that there are no bystanders in the dangerous area and that you have good and clear visibility on the work area.
- It very dangerous and strictly prohibited to sit/stand on the winch while transporting it.
- Provide due and correct mounting of the winch.
- Make sure to comply with driving speed requirements for the specific road conditions. Use caution when changing direction or turning while winching uphill, downhill or across slopes.
- Do not stand in the dangerous area. Assure that nobody stands inbetween winch and tractor, unless the tractor is safely braked and blocks have been put underneath the wheels to avoid accidental moving.
- Do not remove nor start handling timber before the winch has come to a complete stop.
- Periodically check that all screws and fixations are tightly in place.
- Before putting the winch to work perform a visual checkup of the overall conditions and let a skilled technical overhaul and service your winch at least once a year.
- It is strictly prohibited to use the winch for any other application than mentioned in this manual. CAUTION: do not use the winch for hoisting applications! (Figure 5)
- Make sure that power is fully disconnected from the winch and that the tractor has been switched off before performing any repair or work on the winch.
- Never operate the winch without its safeties and protections duly in place.
- Strictly use wire rope of adequate crush resistance, strength and quality. Provide for immediate wore rope replacement, if any fault or anomaly is detected.
- Be sure that your wire rope length provides for a free gap to the upper drum profile of least 1.5 the rope diameter when fully spooled. In other words, when the rope is fully spooled there should be space left on the drum for at least two more coils.
- Make sure that your helpers do not put any extra load on the winch without prior informing the tractor driver.
- Strictly operate the winch from a safe place, at safety distance from the load, the rope and such other dangers as unfelled trees. The driver seat accounts as a safe place only if a safety screen is provided to separate the winch from the tractor in such a way that it may not be removed or bypassed.

- CAUTION: it is very dangerous to stand in front of a tree to be felled and winched away. (Figure 1)



(Figure 1)

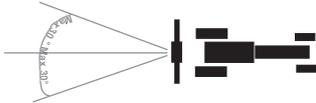


(Figure 2)

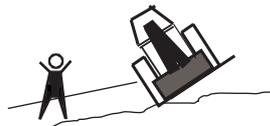
- Winching with a pulley originates a three-sides dangerous area where none is allowed to stand during winching operations. (Figure 2)

- Never exceed the max admissible pull angle of 30° (Figure 3).

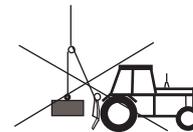
- CAUTION: tip-over risk (Figure 4) when winching on rough terrain or exceeding the maximum admissible pull angle.



(Figure 3)



(Figure 4)

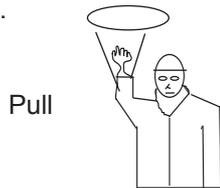


(Figure 5)



Keep away from the dangerous area!

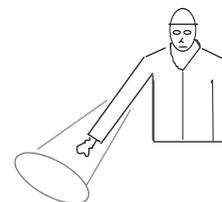
- You and your helper must establish clear and precise hand signals and review them so everyone clearly understands.



Pull



Stop



Release rope

- If your winch is equipped with lower snatch block, use it also for pulling operations.

- The operator should monitor the load throughout the entire pulling operation. Although winches are one-man equipment, you should never work alone and a second person should be ready to help in the event of lack of full visibility.

- Attach your winch to any tractor equipped with road transport tires to avoid infringement of road travel profiles. If this is not available, provide your towing vehicle with protection chains. Chains are mandatory on all types of tire for travel on icy or snowy foundations.

- Before disconnecting the winch from the tractor, park on a safe and flat surface. Drive the winch down on the special stabiliser foot and hang the driveshaft on the special mount provided on board of the winch.

- Pinched-hands and injuries danger in the three-point hitching area!



Read this basic guide carefully, familiarize yourself with the operation of your winch before having to maintain it and be constantly safety oriented.

4. About PTO

- Use only and strictly CE approved drivelines duly connected and secured in compliance with manufacturer's instructions.
- Never use a PTO driveline without safety shield or with a damaged guard.
- Make sure that the shield is of the correct size and length for the drive shaft and is duly mounted on it.
- Use safety chains to secure the shield against dangerous rotation and distortion.
- Before operating the PTO driveshaft make sure the rpm number and direction comply with the one shown by the arrow-sign on the winch. Take all due measures to avoid unauthorized thirds standing the dangerous area of the winch!



- Never run the PTO shaft when the tractor motor is switched off!
- After dismounting the PTO shaft use the special holder on the winch to safely store it away.

5. Operation

This timber winch is designed for logging applications only. The winch comprises a welded frame, a main shaft, a chain wheel clutch, a drum with wire rope, a brake and a snatch-block.

The wire rope is slipped around the timber, the timber is pulled to the skid and the rope is hung up to the special grooves in the skid by means of fixation chains. Timber and long tree trunks are so winched to a parking area for loading on trucks and further delivery.

5.1 PTO shaft requirements



Do not PTO operate winch at any faster speeds than max. 540 RPM.

To mount your winch to the tractor use three-point hitch CAT I and Cat II only.

5.2 Connecting the winch to the tractor

Make sure that nobody stand in the dangerous area while connecting the winch to your tractor

Logging winches can be mounted on any tractor equipped with 3-point hitch of category I or II.

With a special arrangement it is also possible to mount the winch to a tractor with automatic hitch mechanism on the lower hitch points.

Make sure to strictly use approved types and that proper shielding with chain fixation is available. Make sure to perform accurate connection of your PTO driveline both on winch and power input side.

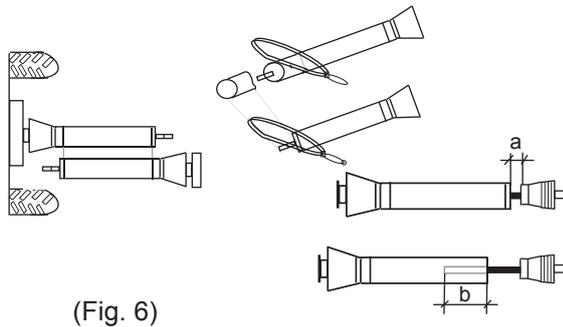
In order to transfer torque from the tractor to the winch you must use a driveline with torque overload clutch coupler. Mount the winch to the tractor and then secure the stabilisers underneath the lower hitch points. Finally incline the winch by approximately 20° using the upper hitch bar.

5.3 Positioning the drawbar to the PTO shaft

The length and height of a tractor drawbar may need to be adjusted to ensure that the PTO driveline does not compress or separate during operation.

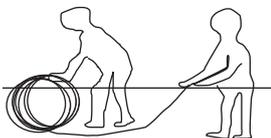
To make this adjustment:

- Mount the winch to the tractor!
- Pull the two halves of your shaft apart and respectively mount them to the tractor and to the winch and perform a crosscheck as shown below (Fig. 6)
- For increased safety make sure that a minimum wrapping of 200mm (b) occurs when pulling the hitch bar all the way up and down. With the shaft parallel to the ground also make sure that the shaft doesn't hit the stand (wrapping (a) should be still at least 20mm).
- For shortening of the PTO shaft, first cut the telescope off and then the external one by the same length.
- Grind both shaft ends, clear chips and dust away and oil all sliding contact areas before final assembly.

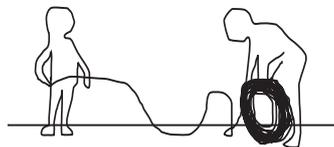


(Fig. 6)

5.4 Wire rope installation



DO!



DON'T!!

Remove the small protection grid and then take the cap off (Fig. 8, Pos. 7). Now turn the drum to the right position for releasing and removing the drum screw (Pos. 8).

Before releasing the fixation screw, make sure to disengage the brake lever (Pos. 1 Fig. 9) by shifting it on "AUS".

Insert the wire rope through the inlet fairlead and feed it to the drum by means of the upper block. Fit the rope into the special groove and tighten the screw (Pos. 8). Now start spooling as described under skidding procedures.

In order to avoid possible rope damages keep winding up for a while after complete spooling of the entire rope length, as described under section "spooling of the wire rope".

Follow exactly these instructions in order to avoid troubles and assure smooth working with your winch.



Make sure to avoid rope pockets, kinks and twirls while unrolling and feeding to the winch.

5.4.1 Checking the rope quality

- Stricly use brand new ropes.
- Make sure to use ropes of approved quality, suitable strength and compliant to the specifications on the identification label.
- Do not use longer ropes than instructed in the technical specifications of this manual.

5.4.2 Spooling the wire rope

Completely spool the rope making sure to wind tightly and evenly onto the drum and avoiding both overwinding and underwinding.

Correct windind is accomplished by:

- keeping a load on the cable
- and firmly attach one end of the cable to a firm stable anchor-point suitable to withstand the pull force while the rope starts spooling onto the drum pulling tractor and winch towards the anchored rope end.

It may be convenient to carry out this operation either on a slight gradient with the idled tractor facing uphill or alternatively with braked tractor.



Wind the rope tightly and evenly onto the drum. Before putting your winch to work spool the rope completely off and then rewind it again! Check the rope over for any signs of damage, flattening, broken wires, wear and corrosion.

5.4.3 Spooling off the wire rope

After you have correctly installed the winch, you can start spooling the rope off. This is accomplished by pulling the red line (Pos. 2) till the Lever 1 snaps into the AUS position (Fig. 7). Release the brake and start spooling the wire rope off. If the wire rope is tangled or badly wounded on the drum, first unwind the entire rope length. Keep running the tractor idle while loading the winch and completely rewinding the rope onto the drum. Stop pulling as soon as the tractor reaches close to the anchor-point where the rope end was attached. Now disengage the clutch lever.

Make sure that pulling is performed smoothly and without rush movements that could result into tangling, twirling or kinking of the rope.

5.5 Skidding instructions

Set the hydraulic cylinder of the tractor three-point hitch in its lowest position. Firmly settle the winch down on the skid and engage the tractor manual brake.

NEVER start pulling operations before having securely and firmly settled the winch in a stable position. Pull the green line (Pos. 5) to shift the Lever 12 in its EIN position (Fig. 8). The wire rope will now start to wind up onto the drum. To stop winding simply release and set the green line loose. When doing so, the brake immediately stops the drum and keeps the load away.

Changes and self-modifications to the mechanism controlling the brake engagement system (Pos. 1, Fig 7) are STRICTLY PROHIBITED.

Do not raise the hydraulic cylinder of the tractor three-point hitch during skidding! (DANGER: you may damage your driveline).



Notwithstanding the consistent PTO power speed, the pull force is subject to variations.

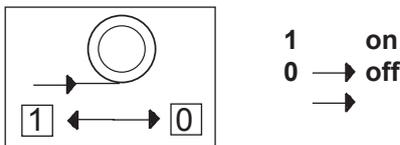
Even at consistent power ratings, the pull force of the winch still depends on the length of the remaining rope spooled onto the drum. The maximum pull force is obtained with the first rope coils on the drum. The pull force decreases as the rope winds up on the drum. The skidding speed is inversely proportional to the pull force and reaches the peak speed as the rope is fully spooled onto the drum.



The rated pull force is the largest force produced as the rope starts winding up onto the drum. This is also the figure that is shown in the technical data reported on the product identification label on the winch. The pull force of the winch decreases as the rope keeps winding further more onto the drum. At fully wounded rope the pull force of the winch amounts 50-60% of the rated force.

5.6 Settings

5.6.1 Clutch



Proper clutch settings will ensure optimum pull force. The clutch is set by the manufacturer during final testing of the product before shipment. However, possible ongoing wear of the lining may require some extent of adjustment as time passes.

For clutch adjustment attach a torque wrench to the green line. If you don't have any torque wrench available you can also use a spring balance of sufficient measuring scale.

Attach the torque wrench (or scale), apply a 350 N (35 kg) force to the line (Pos. 5, Fig. 8) and make sure that the clutch slowly shifts towards the winch frame as you apply the force and stops moving when hitting against the winch. If the force applied is too small, tighten the nut (Pos. 9, Fig. 8) by turning it clockwise and making sure that as you do this the clutch lever gradually shifts towards the winch frame and stops there. Keep tightening until the required force is reached that is till the lever 6 backs away from the winch. Finally slightly turn the nut anti-clockwise to release it a little bit. Now the clutch is set and ready to work.



Each winch is factory set at the maximum pull force shown on the product identification label. It is strictly forbidden and very dangerous to achieve higher settings and run the winch at higher force ratings!

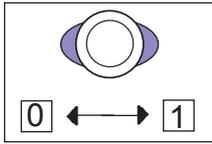
5.6.2 Prebrake regulation

To facilitate winding of the wire rope, perform prebrake regulation with the screw (10) and respective wingnut (11) (Fig. 8). Exact prebrake regulation will also prevent the rope from unwinding excessively fast or accidentally slipping off the drum. Extreme fast unwinding and abrupt brake disengagement may cause severe damages to the wire rope.

Exact prebrake regulation occurs when the rope can be effortlessly spooled off the drum.

The prebrake arrangement must be disengaged for uphill skidding operations in order to ensure easier pulling of the rope.

5.6.3 Brake



1 → engaged
0 → disengaged

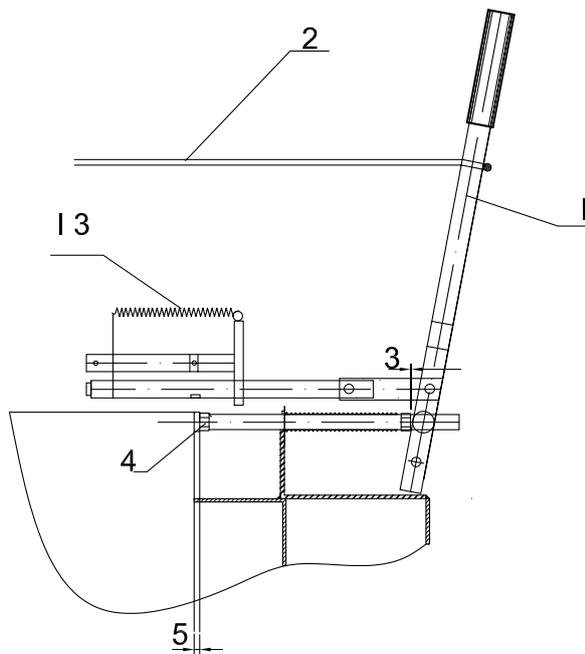


CAUTION: tripping of the brake lever occurs when the clutch lever is engaged with the brake lever still in its left-hand position.

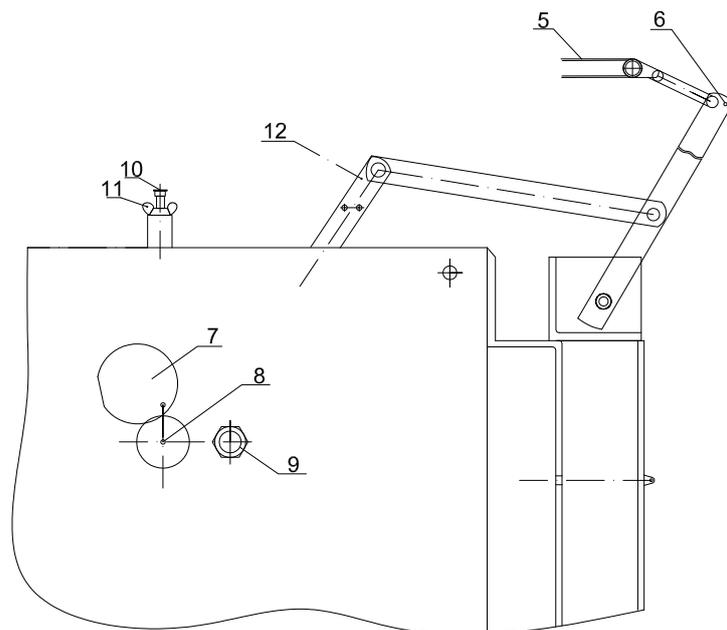
The brake is engaged by means of a nut (3) and a nut (4). When the brake is engaged the lever (1) shifts into its position EIN (Fig. 7).

First adjust the nut (3) using an open-end spanner until the nut stands approx 5 mm away from the lever. Then adjust nut (4) till the sliding plate underneath the nut projects 3-4 mm out of the winch frame.

If you cannot reach the required brake force, repeat the same steps tightening the nut by further turning it to the right side. Excessive brake force will cause troublesome unwinding procedures. In this case release the nut by slightly turning it to the left.



(Fig. 7)



(Fig. 8)

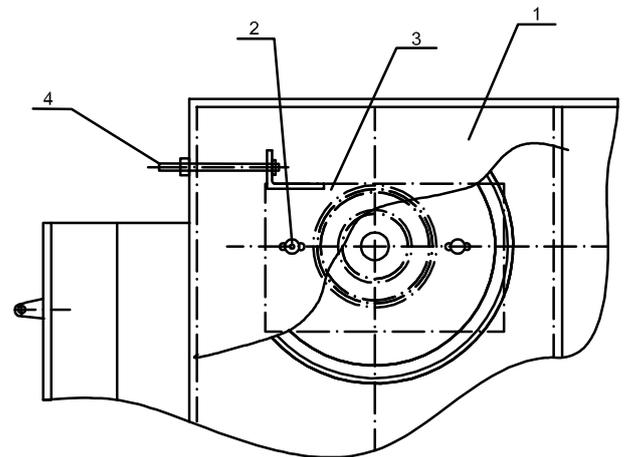
6.6.4 Stretching of the drive chains

After the first operation hours you possibly experience some extent of release of the drive chain that will then need to be restretched.

Stretching is accomplished by first removing the safety guard on it (Pos. 1 - Fig. 9). Then slightly release the fixation screws on the mount (Pos. 2 - Fig. 9) and finally access the chain and start stretching it by means of the special adjustment screw (Pos. 4).

Adjust the chain so that you can still provoke some extent of deflection by applying one finger tip pressure in the middle. Then make the PTO shaft turn and check for troublefree and effortless turning.

Properly stretched chains can still be deflected by 1-3 mm by applying your maximum hand force in the middle of the distance between sheaves.



(Fig. 9)

5.7 Lubrication

Make sure that the motor is switched off and all moving parts are secured before performing any maintenance/repair work on the machine.

The winch is equipped with self-lubricating bearings that required no further lubrication or maintenance. Maintenance is mainly required on the engagement/locking mechanism (Pos. 13 - Fig. 7) that needs periodic checkup. Clean all metal surfaces with spray agents in order to:

- increase lubricant efficacy and
- inhibit formation of humidity, condense water and ice on the leverage and the control rods and therefore prevent consequent functional troubles.

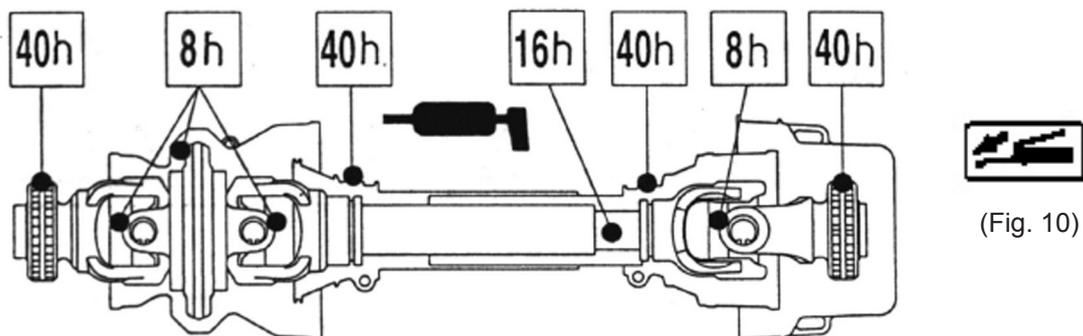
Lubricate the housing of the upper block every 50 hours.

Provide regular maintenance of the drive chain removing any eventual residual dirt and slightly greasing it. Use grease suitable for high temperature (it should not melt as common low-price grease) in order to prevent grease contamination of the sliding clutch surfaces.

Strictly use special spray lubricant for link chains.

Provide PTO shaft lubrication in accordance with the instructions of the manufacturer (Fig. 10).

CAUTION: improper lubrication may cause dangerous contamination of the clutch sliding parts and of the brake lining.



(Fig. 10)

Trouble de- scription	Possible origins	Remedies
Winch is not pulling enough	Wrong rope length	See technical specification
	Wrong clutch setting	Reset the clutch
	Oil on clutch discs	Clean the clutch lining or replace clutch ✘
	Worn-out clutch lining	
	Damaged winch drive	Replace damaged parts ✘
Brake is not holding	Wrong brake regulation	Adjust brake force
	Oil on brake lining	Clean the brake lining and the brake surface on the drum ✘
	Damaged brake mechanism	Replace damaged parts ✘
	Worn-out brake band (collar)	Replace brake collar ✘
Rope is hardly spooling off	Wrong setting of the pull force	Adjust rope pull force
	Damaged rope	Replace rope
	Damaged brake band (collar)	Replace brake collar ✘
Winch does not pull even if the clutch is released	Wrong clutch setting	Check pull force
	Damaged drum	Replace drum ✘
	Damaged clutch discs	Replace clutch ✘

✘ Maintenance works identified by this symbol require help of a skilled technician or technical service.

All log winches are function and safety tested by the manufacturer before shipment. Please strictly use original spare parts for replacements. Use of non-original spare parts may lead to functional troubles or damages that will void the manufacturer's warranty and liability. Modification, alteration or deviation to the winch should only be made by the original manufacturer.

5.7.1 Check-list of visual controls before start-up

- Check for tightness of all screws and nuts.
- Check for visual mechanical damages of the winch construction.
- Make sure all safety pins are safely in place.
- Check for PTO shaft correct installation and connection and make sure that safety shield and chains are duly in place.
- Check the lower hitch points of the tractor and make sure they are firmly secured (no horizontal movement).
- Check for clutch proper settings.
- Check for proper rope pull-out force.
- Make sure to remedy any eventual fault before starting to work!

What to do?	When to do it?	How to do it?	
<ul style="list-style-type: none"> • Pull the rope completely out and then spool it tightly onto the drum again. • Check the rope for damages, melting, thermal fusing, or thinning. • Check rope anchorage and fixation 	On all new winches and always as the rope is loose	visual control	
Check the chain tension	every 48 operation hours if required or after 3000 operation hours	✘	
Change the clutch discs			
Change the brake collar	Every time when adjusting the brake force is no longer possible and latest after 3000 operation hours	✘	
Change the oil	Every 48 operation hours and then once a year	Lithium grease	
Lubricate		at least every 8 operation hours	Lithium grease
	Drive chain	every 48 operation hours	Lithium grease
	Housing of the upper and lower sheaves and all sliding parts	at least once a month	Lithium grease Oil
Clean casings inside	every 100 operation hours or more frequently in case of hard working conditions	Release all screws and remove cover	

6.7.2 Effects of overload and misuse

- burnt clutch lining
- burnt brake collar lining
- damaged brake mechanism
- broken rope reel or damaged reel bearing
- damaged power drive/PTO shaft housing
- damaged power drive, PTO shaft or chain wheels
- strain of winch frame parts (deformed connections, guards, mounts, reels, blocks etc...)
- overstrained, cracked, broken lines, rope or Choker-chain
- deformed drum axle.

6. Technical specifications

		<u>FSW 4.5 M</u>	<u>FSW 5.5 M</u>
Max. pull capacity	[t]	4,5	5,5
Speed at 300 RMP of the PTO shaft	[m/s]	0,90	0,90
Rope length	[m]	70	70
Rope diameter	[mm]	9	9
Rope tensile strength	[kp]	9830	11800
Tractor power requirement	[kw]	25	35
Winch width	[mm]	1400	1520
Winch height w. shield	[mm]	2000	2100
Weight	[kg]	330	385
Chainsaw holder, peaveys jacks or axes mount		standard	standard
Towing hook		standard	standard
Lower snatch-block		standard	standard

7. Warranty

All BGU machines are covered with warranty terms in accordance with the law. Customers should promptly notify the manufacturer eventual material or production claims on their detection. While asking for warranty service, customer should show copy of their purchase invoice or receipt.

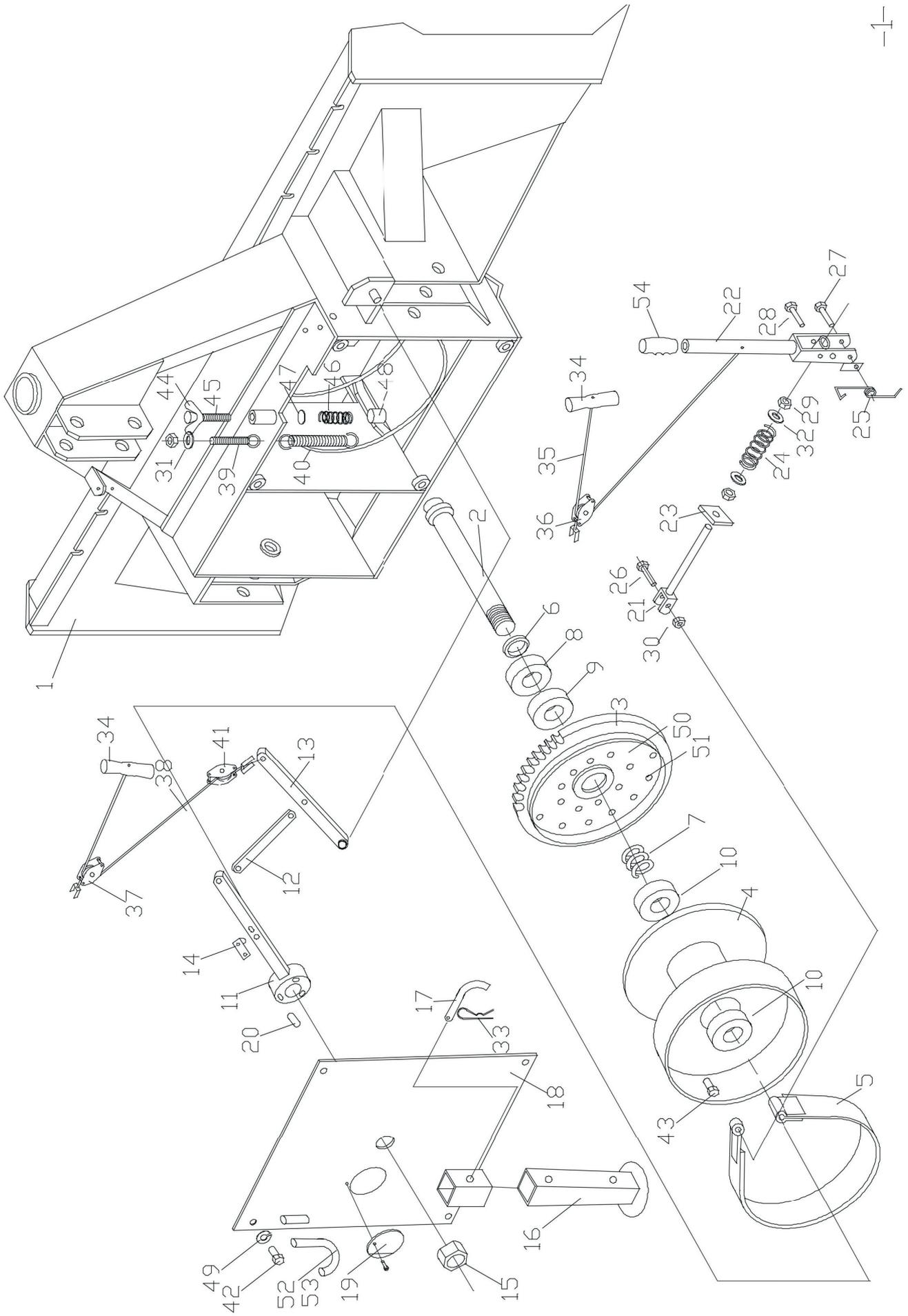
The warranty does not cover for faults due to natural wear, temperature or weather agents as well as misuse, faulty installation or set-up, improper operation and lubrication or acts of vandalism.

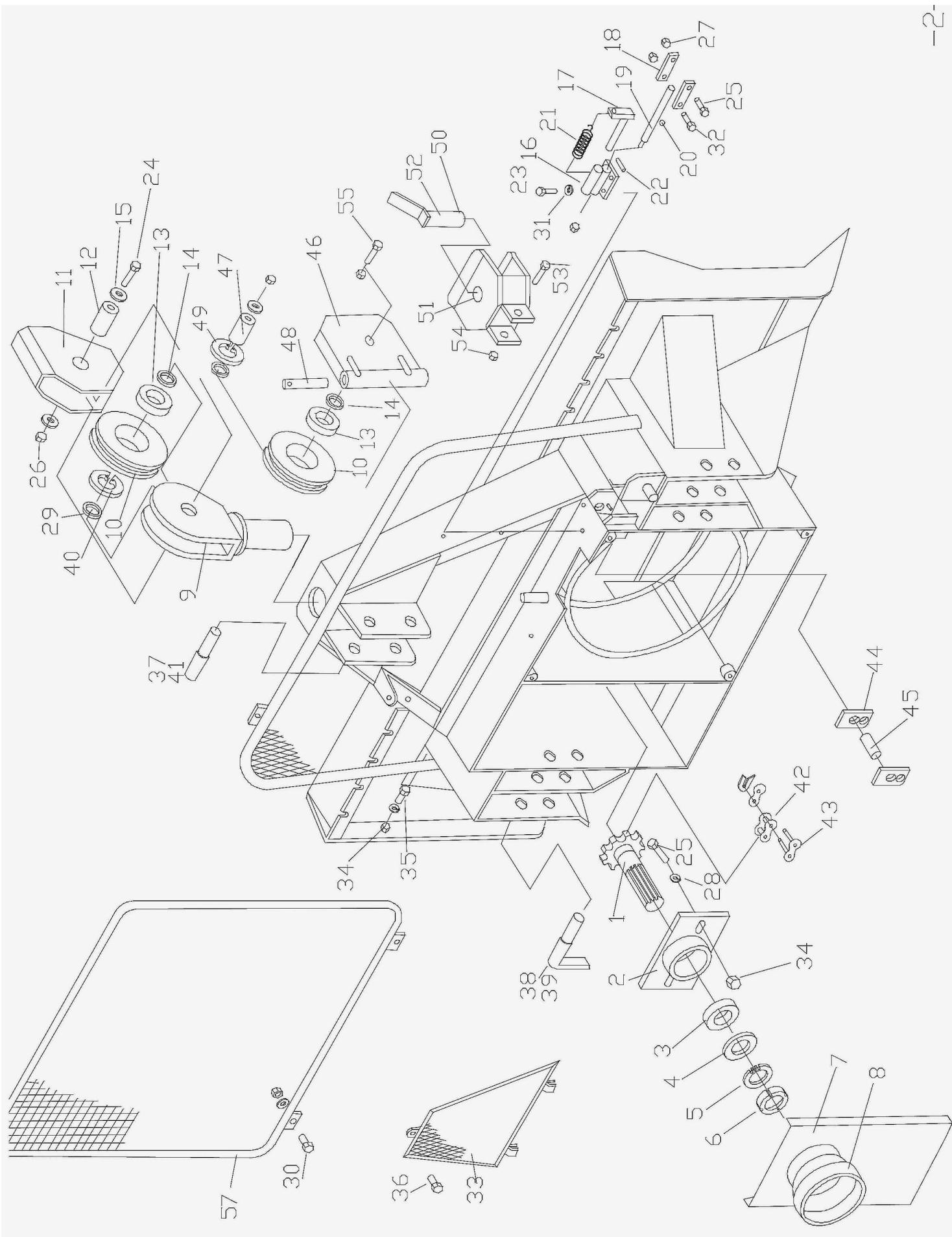
No warranty will be given on parts damaged by improper handling, use and application. The manufacturer is further not responsible for warranty service on machines used for other applications than mentioned in this manual, altered or modified by the customer or other thirds, or overloaded.

No warranty applies to consumable parts (for instance: V-belts, blades, conveyor belt and other fittings) and to adjustment/calibration worksn.

8. FSW 4.5M, Spare parts list

1	Welded steel construction	1	1	Shaft with sprocket wheel	1
2	Main axle	1	2	Drive housing	1
3	Sprocket wheel with clutch	1	3	Grooved ball bearing (Conrad type) 6208 2RS	1
4	Rope drum	1	4	Grooved ball bearing (Conrad type) 6208 2RS 1	
5	Brake band	1	5	Lockwasher MB08	1
6	Spacer sleeve	1	6	Nut M40 to DIN KM08	1
7	Thrust spring	1	7	Protection plate for sprocket wheel	1
8	Axial ball bearing	1	8	Shaft protector	1
9	Grooved ball bearing (Conrad type) 6306 2RS	1	9	Pulley casing	1
10	Grooved ball bearing (Conrad type) 6306 ZRS	3	10	Pulley	1
11	Clutch lever	1	11	Wire rope guide	1
12	Central lever	2	12	Spacer sleeve	1
13	Connection element	1	13	Grooved ball bearing (Conrad type) 6306 2RS	1
14	Angle piece	1	14	Spacer sleeve	1
15	Nut M30 DIN 985	1	15	Washer d=12.5/36/3	2
16	Arrester	1	16	Switch-on element	1
17	Pin	1	17	Rod	1
18	Cover, large	1	18	Plate	2
19	Cover, small	1	19	Pull rod	1
20	Coupling split pin	3	20	Ball d=8.7	2
21	Clamping bolt	1	21	Tensioning spring	1
22	Brake lever	1	22	Spring pin 6x32	1
23	Plate	1	23	Socket head screw M8/12	4
24	Compression spring 15/70	1	24	Screw M12/80 to DIN931	1
25	Coil spring 16/30	1	25	Screw M8/60 to DIN931	2
26	Screw M10/45 to DIN931	1	26	Self-locking nut M12 to DIN985	3
27	Screw M8/70 to DIN931	1	27	Self-locking nut M8 to DIN985	4
28	Screw M8/60 to DIN931	1	28	Washer d=12.5/36/3	2
29	Nut M12 to DIN985	8	29	Spacer sleeve	1
30	Nut M10 to DIN985	1	30	Screw M12/40 to DIN558	2
31	Flat washer, ID 8.5 to DIN 125A	1	31	Flat washer, ID 8.5 to DIN 125A	2
32	Spacer sleeve	2	32	Screw M6/35 to DIN933	1
33	Hair cotter d=3	1	33	Safety grid, small	1
34	Pull grip	2	34	Self-locking nut M12 to DIN985	1
35	Brake line, red	1	35	Turnbuckle M12/70 to DIN931	1
36	Roller drive	1	36	Screw M8/16 to DIN933	1
37	Dual roller drive	1	37	Bolt w. chain	3
38	Clutch lever, green	1	38	Bolt	2
39	Turnbuckle M8/60	1	39	Linch pin 10	2
40	Tension spring	1	40	SEEGER ring ID=72	1
41	Dual roller drive	1	41	Linch pin 10	1
42	Screw M12/20 to DIN933	4	42	Roller chain 1" 16B1	1
43	Screw M12/30 to DIN933	1	43	Connection piece 1" 16B1	1
44	Wing nut M10	1	44	Plate	2
45	Screw M10/45 PVC	1	45	Bolt d=16x48	1
46	Compression spring	1	46	Pulley	1
47	Washer, d=15	1	47	Spacer sleeve	1
48	Bolt d=15x32	1	48	Bolts	1
49	Flat washer, ID 13 to DIN 125A	4	49	Spacer sleeve	2
50	Clutch plate	1	50	Linch pin	1
51	Rivet d=5x32	4	51	Connector	1
52	Holder for driveline	1	52	Bolts	1
53	Spring pin	1	53	Screw M16/100	1
54	Lever PVC	1	54	Self-locking nut M16 to DIN985	1
			55	Screw M12/80 to DIN985	1
			56	Self-locking nut M12 to DIN985	1
			57	Safety grid	1





9. Operation tips for new winches

Before putting your new winch to work make sure to read the user's manual and get familiar with all operation and safety instructions contained in the manual.

- Spool the rope off making sure to leave 3 to 4 coils on the drum
- check for possible eventual damages
- Apply approximately 1.5 - 2 t load when rewinding



Lack of compliance with this instruction may cause rope damages

MIND for rope twirling, changes of rope construction, strands nicking and wear! DANGER!

The warranty applies only to brand new, undamaged wire ropes. No warranty claim shall be considered for worn-out , damaged or used ropes or parts!



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Subject to changes

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