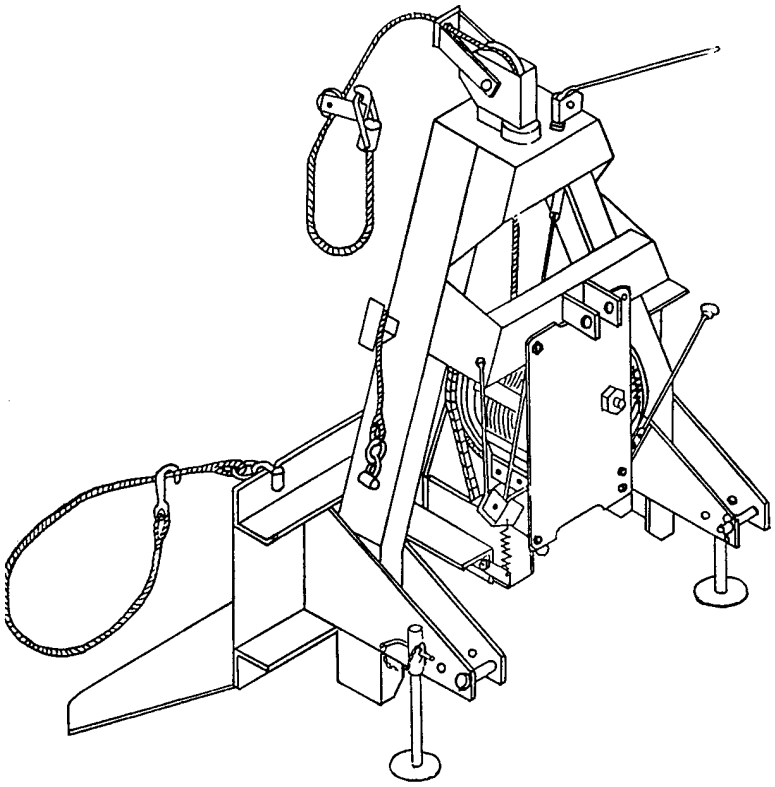
trejon.se

MULTI

Instructions for Use and Maintenance

Winch 3000 & 5000



NOTE! Read instructions before use.

TREJON AB
Företagsvägen 9
SE-911 35 VÄNNÄSBY
SWEDEN
Tel: + 46 (0)935 399 00
Fax: + 46 (0)935 399 19

TREJON®

CE

Dear Customer,

You have made a good choice. We congratulate you to your selection of a TREJON product that offers quality and performance with reliable service.

By reading the manual and following it's recommendations you will ensure the long and effective use of the equipment.

We have produced this manual for you to get a good understanding of the functioning of the equipment and what safety and maintenance instructions to follow when working with it.
If any question should arise when using the equipment or when reading this manual, you are welcome to contact us for further information.

TREJON AB
Företagsvägen 9
SE-911 35 Vännäsby
Sweden

Tel: + 46 (0)935 39 900
Fax: + 46 (0)935 39 919
Email: info@trejon.se
Website: www.trejon.se

Honoured retailer,

in order for the guarantee to be valid and to forfill all legal requirements, we ask you to fill out the guarantee form together with the customer and return it to TREJON.

The guarantee is valid from the day the equipment is handed over to the customer.

Delivery checklist:

Check for damages caused in transporting. Inform the transporting company.	
Check if the delivery is complete due to the order.	
Fill out the guarantee form with the customer and send it to TREJON AB.	

Instructions for Use and Maintenance WINCH 3000

Log-winches MULTI 3000 (further " winch") is meant for gathering and transporting cut logs from the forest. The winch will be fixed to the hanging mechanism of the wheeled tractor (power 30…75 kW) of II category. The winch will be acute from

1. TECHNICAL DATA

Transport capacity	28 kN
Length of cable	50 m
Diameter of cable	8 mm
Reeling speed of cable	0,5…1,3 m/s
Quantity of loop-cable	5 pcs
Dimensions of winch	
- length	83 cm
- width	130 cm
- height	160 cm
Weight	265 kg

2. WORKING PRINCIPLE OF THE WINCH (Look draws 2 and 3)

There are following elements for working with winch:

- switching rope of clutch;
- lever of the trabecula brake.

While switching on the tractor's PTO shaft (turns 540 min^{-1}) the chain wheel 9 with the friction cover starts turning. While pulling from the rope 50 the drum starts to turn and starts reeling up the wire. Letting the rope 50 loose, the spring 24 pulls down the lever 8, muff moves to the initial position, clutch 10 switches off, drum stops and will be fixed by the trabecula brake. Winch is supplied with the overrunning brake. The overrunning brake does not let the drum to turn free and so the wire will not mix on the drum.

3. PREPARING THE WINCH FOR WORKING

- Attach the winch to the hanging mechanism of the tractor.
- Adjust hanging mechanism's clamping screws of the tractor so that the winch is horizontally to the tractor.
- Attach PTO shaft: P= 26 kW
  n= 540 min^{-1}
  L= 560 mm
- Start the engine, switch in the PTO shaft and convince that the winch works normally.

4. WORKING

- Start working with gathering smaller logs. So you will learn to work with this winch and you will get experienced.
- Support the winch on the ground at the working place.
- To reel off the wire free the drum. To do that, pull down the trabecula brake's lever 51. If there is not the danger for the load to slip down (the ground is field), you can switch off the trabecula brake with the bar 28 on the drum's guard 5.
- Fix the wire 21 around the log and put the lawn of the wire behind the moving hook 13.
- While pulling from the rope switch in the clutch and pull the log to the needed place.
- Place end of gathered logs to the winch's plate. Place looped wires around logs and fix their ends to the holes on the upper border of the plate.

5. MAINTENANCE

- For cleaning, maintaining and adjusting the winch, switch off the tractor's PTO shaft and stop the engine.
- After 4 hours of work check fixings and in need tighten loosen nuts.
- Every day lubricate the chain 9 (see drawing 2) by dropping the oil on links of chain.

Recommended oil is industrial oil for general-purpose with characteristics as follows:

- kinetic viscosity at 50ºC	17-23 mm^2/sec
- viscosity index	85
- gelosing temperature under ºC	-30
- ignition temperature ºC	180

For example: ADDINOL C32 or other analogues.

- After 40 hours working, make following maintenance (look draws 2, 3 and 4):
  - Lubricate with the shot lubricator all lubrication surfaces 48;
  - Lubricate moving block wheel of the wire while dropping some drops of oil on the shaft of block wheel;
  - To lubricate the wire, drop oil drops on the wire. Friction the oil with the cloth;
  - Visually check the condition of looped wires 14, wire 12 and hook 13 (there can be up to 6 broken fibres for the 1 step of the wire);
  - Adjust the tension of overrunning brake;
  - Check the tension of chain. The chain of the winch is tightened right if you can with hands take it 8…10 mm away from the moving way.

Use lubrications for general-purpose:

- dropping temperature ºC	180
- consistency (fall-cone test)	from 265 to 295
- kinematical viscosity at 40ºC	60+5 m^2/sec
- ignition temperature ºC	200
- gelosing temperature under ºC	-22

For example: ADDINOL CF2 or other analogues.

- To adjust the clutch (look draw 3):
  - Turn open fixing nuts 30 of the axis 19;
  - Turn the axis clockwise with the screw key no. 14 (up to half turns) and without changing the position of the axis tighten nuts;
  - While pulling for the rope check the idle running of the clutch (length of the idle running is 4…5 cm).

5.6 Once in the season make the complete check:

- Demount the winch and check the condition of the components and details;
- Wash bearings 46 and 47, check their condition and lubricate them again;
- Check the condition of friction covers of the chain wheel. If covers are worn-out (thickness under 5 mm), change covers.

6. SAFETY PRECAUTIONS

- With winch can work only these persons who have learned to work with winch, who have studied current manual and persons who are suitable to work with this machine.
- Check the winch and tractor at the beginning of every working day and remove defects.
- Stop the engine and make sure that the machine will not start culpably while removing defects or maintenance.
- It is forbidden to remove winch's safety devices or make them non-active.
- Controlling the winch has to happen at least 5 m from place where the wire runs in.
-
- Tractor and the winch have to put into the stabile position, support and to check that the longitudinal axis of the tractor is as much as possible at the same direction as the direction of the pulling wire. While secondary pulling there is the danger of the tractor to turn over.

- A personnel that uses the winch has to convince that nobody is in danger. Safety area (100 m fro the winch) has to be marked with forbidding and reference boards.
- It is forbidden to be on the power area of the tensioned wire. It is also forbidden to drive on the moving log or guiding the log. It is forbidden to touch tensioned wire when it runs into the machine.
- The size of pulled logs has to be fitted to the conditions like landscape, topography, and capacity of the winch, coupling instruments, weather.
- While hooking logs, convince that the hooking devices are fixed. Logs may not go off.
- Check pulling wire and hooking chains. Remove defects immediately. Damaged wire cannot be used. Renew wire timely. While checking the wire turn your attention to following aspects: corrosion, changes of the shape, frictions, breakings of the fibre.
- At renewing of the hooking devices following has to be followed: wire's or chain's tear resistance has to be at least 2 times bigger than the winch's maximum traction.
- Wire and hooking devices may not be dragged on the ground while driving.
- Serving personnel has to use precautionary measures.
- Do not use winch as the plough, the construction is not meant for that.

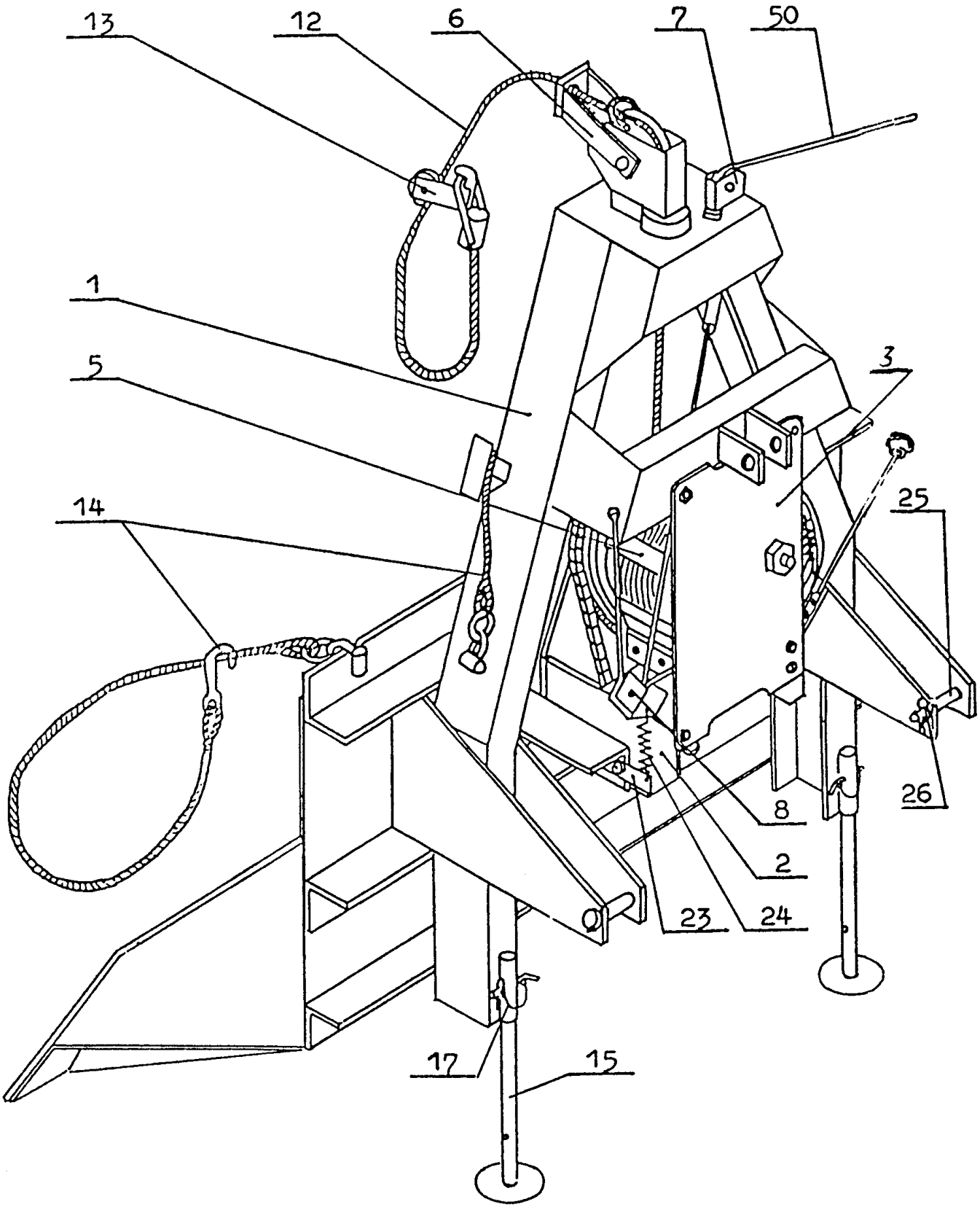
7. POSSIBLE DEFECTS AND HOW TO REMOVE THEM
For removing defects stop tractor's engine.

Description of the defect	Possible cause of the defect	How to remove defect
1, Traction of the winch has become smaller.	Wrong adjusting of the switching muff.	Adjust switching muff: -Free fixing nuts of the drum axis. -With screw key turn the axis (turning clockwise the tension grows, counter clockwise – lessens) -Fix fixing nuts of the axis. Switching muff has to be adjusted so that the idle running is minimal, so that the wire does not reel on the drum freely and it is possible to pull wire out with hands.
	Oil on the friction covers	Clean friction covers.
	Friction covers are overheated	Let friction cover to cool down.
	Friction covers are too worn out.	Place new covers.
2, Switching muff does not switch in or off.	There is no idle running, muff is over tensed.	Adjust the muff.
	Conic rolls of the muff have changed their position and the muff is not moving.	Demount the muff. NOTE Muff is left threaded. Place rolls to the right position. Make sure that pin chips of the winch's cap fit to semi-muff's holes.
	The tension of the muff has lessened	Tighten spring or place new spring.
	Switching rope off the muff does not move, it is between block's wheels.	Place the rope into block's grooves.
	Muff's rolls and working surfaces are too worn out.	Replace the muff.
3, The wire cannot be pulled out with hands.	Wire is reeled infirmly, the wire is mixed and does not move or the overrunning brake is not adjusted right.	Free the wire. Reel the wire on the drum under tension. Convince that the wire reels on under tension. Adjust overrunning brake.
	Switching muff is too tensed.	Adjust the muff.
	Trabecula brake is switched in.	Switch off the trabecula brake and fix it with the bar.
4, Chain is broken	The chain has been with the wrong tension.	Replace the chain.
5, It is hard to pull out the wire and to switch in the clutch.	Winch's working surfaces do not have enough lard.	Demount the winch. Clean details. Fill with the new lard: -thrust bearings -sliding bearings of the chain wheel, drum, wire block and chain tensor. -ramp grooves of the switching muff.

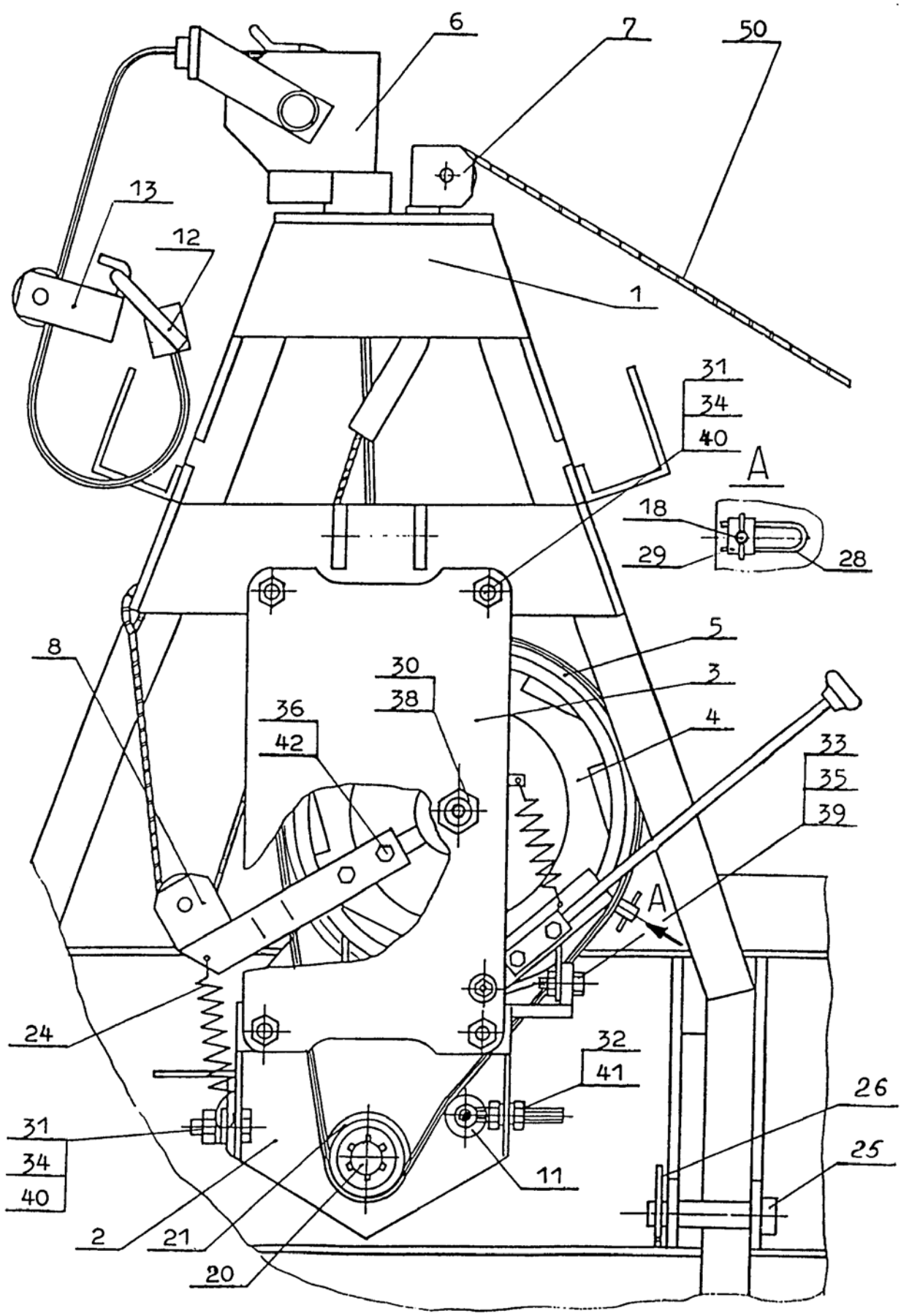
Spare part list MULTI Winch 3000

Item no	Draw	Marking	Description	Quan-tity
1	1; 2; 3	030.01.000	Frame	1
2	1; 2; 3	030.02.000	Frame of the drive	1
3	1; 2; 3	030.03.000	Cover of the winch	1
4	2; 3	030.04.000	Barrel	1
5	1; 3	030.05.000	Cover of the barrel	1
6	1; 2	030.06.000	Cable block	1
7	1; 2	030.07.000	Rope block	1
8	1; 2	030.08.000	Rope block of the clutch	1
9	3	030.09.000	Drawn chain wheel	1
10	3	030.10.000	Clutch	1
11	2	030.11.000	Chain stainer	1
12	1; 2	030.12.000	Cable	1
13	1; 2	030.13.000	Movable hook	1
14	1	030.14.000	Loop cable	5
15	1	030.15.000	Stand	2
16	3	030.16.000	Nut with a tip	1
17	1	030.17.000	Locker of the stand	2
19	3	030.00.001	Shaft	1
20	2; 3	030.00.002	Driving shaft	1
21	2; 3	030.00.003	Chain wheel	1
22	3	030.00.004	Slat	1
23	1	030.00.005	Plate	1
24	1; 2	030.00.006	Spring	1
25	1; 2; 3	030.00.007	Finger	2
26	1; 2; 3	030.00.008	Splint	2
27	3	030.00.010	Cover	1
28	2	030.05.400A	Bar	1
29	2	11382.04.014	Plate	1
30	2; 3		Nut M24	1
31	2; 3		Nut M16	6
32	2		Nut M12	4
33	2		Nut M10	4
34	2; 3		Screw M16 x 40	6
35	2		Screw M10 x 30	4
36	2		Screw M10 x 20	2
37	3		Screw M 6 x 10	4
38	2; 3		Sheave 24	2
39	2		Sheave 10	4
40	2; 3		Spring sheave 16	6
41	2		Spring sheave 12	4
42	2		Spring sheave 10	2
43	3		Spring sheave 6	4
44	3		Ratchet 1625	1
45	3		Cuff 1 - 50 x 70	1
46	3		Single-line radial ball bearing no 305	2
47	3		Single-line radial supporting ball bearing no 8210	2
48	3		Grease nipple 1.2	4
49	3		Chain P-15, 875-2300-2 with connection C- P-15, 875-2300-2	1
50	1; 2		Rope	1
51	1; 2	030.03.200	Lever	1

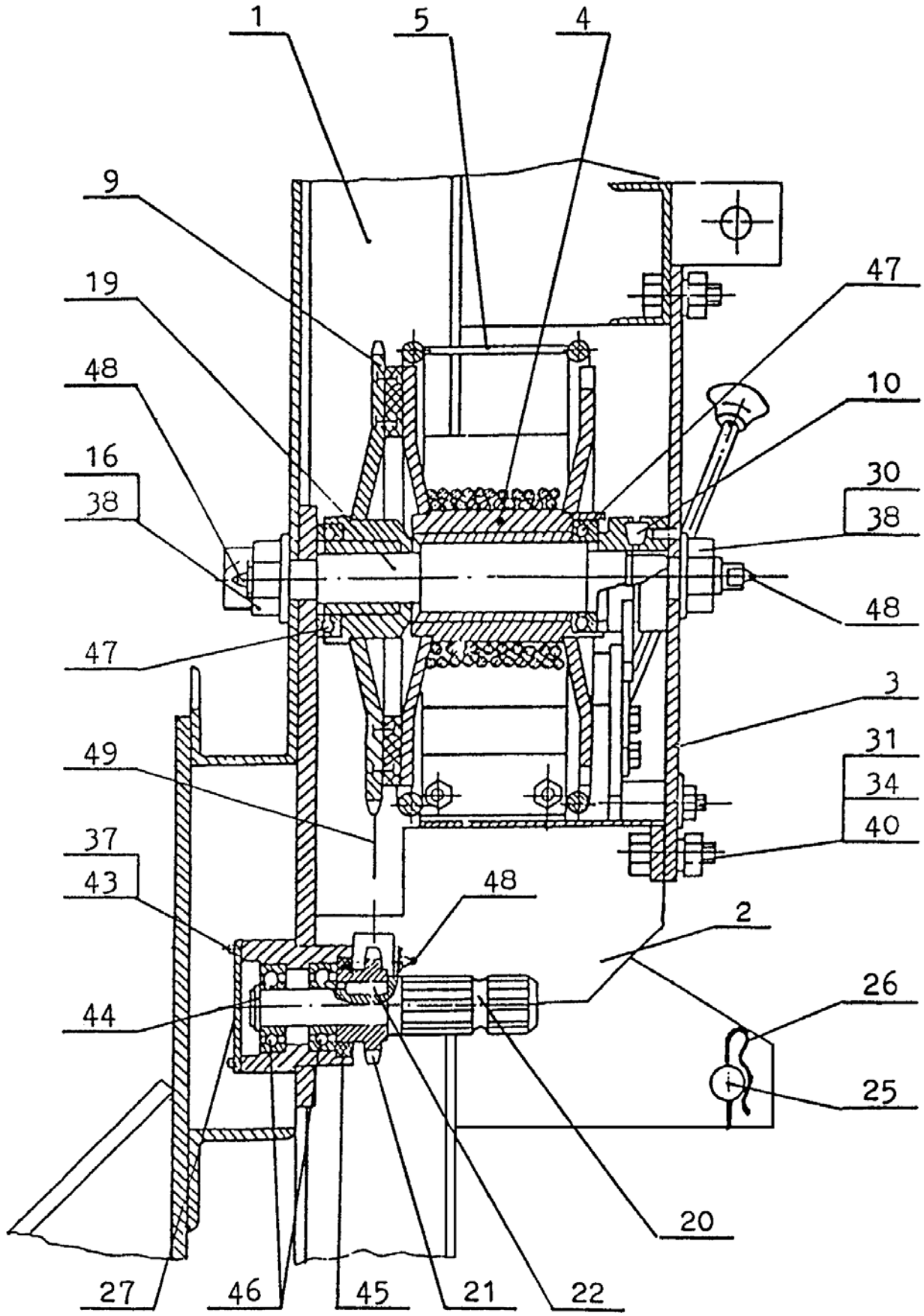
Draw 1 **WINCH 3000**



Draw 2 **WINCH 3000**



Draw 3 **WINCH 3000**



Instructions for Use and Maintenance WINCH 5000

Log-winch MULTI 5000 (hereinafter winch) is meant for hauling and gathering tree-trunks/logs and further transporting them out of the forest.

Requirements to tractor:

Type	Wheel-tractor
Category	2
Power, kW	30…75
PTO shaft	540 r/min

Winch has to be attached to the hanging mechanism of the tractor and be put into operation through PTO shaft with 540 r/min.

TECHNICAL DATA

Pulling force	50 kN
Dimensions:	
length, cm	60
width, cm	150
height, cm	170
Weight, kg	340
Number of hooking chain	5
Cable dimensions:	
length, m	50
diameter, mm	10
reeling speed	0,6…1,3 m/sec
Personnel needed	1 operator

We reserve the right to change the construction and specification details without notice.

1. SAFETY REQUIREMENTS

1.1. Winch is designed and constructed for one person operating. Operator has to be skilled and familiar with present manual.
1.2. Every day before starting work with winch, inspect that machine is in working order. Remove defects if necessary. Particularly turn attention to the condition of the cable and hooking chains. If replacing hooking chains or wire, you will have to remember that their pulling force on braking is twice bigger then pulling force of the winch.
1.3. For any kind of adjustment or maintenance stop the tractor and be sure it's enable to start without an operator.
1.4. It is strongly forbidden to remove safety protectors from the winch.
1.5. Winch has to be operated not closer then 5m from working machine.
1.6. Look at the position of the winch: it has to be stable and cable must run in the direction of the long ways of tractor. Avoid the tractor of falling over when pulling the logs to side direction.
1.7. Keep people, especially children away from the working machine as far as possible. Working zone in about 100m in radius has to be limited and supplied by indicating signs.
1.8. It is not allowed to touch spooling cable or when cable being under the tension.
1.9. It is strongly forbidden to direct moving logs manually or ride on the moving logs.
1.10. Look at reliability of hooking. Logs must be fastened properly.
1.11. It is not allowed to use cable as hooking wire/chain.
1.12. Operator has to use personal safety protectors.
1.13. It is forbidden to use winch for transporting people/goods or to use it as a blade.

2. PRINCIPLE OF FUNCTION AND OPERATION

This winch has a cable drum driven by the tractor's running power by means of a cardan shaft and chain transmission equipped with a mechanical friction clutch.

Winch is operated by means of three main elements: two strings, (pos. 1 and pos. 2) and lever pos.3 (see drawing 1).

white string pos.1 – switching friction clutch
dark string pos. 2 – switching band brake
lever 3 – switching band brake

Mechanism has three positions: initial, preparatory and working position.

I - Initial position (see drawing 4)	Clutch open Brake closed	Drum is fixed and doesn't turn
II – Preparatory position (see drawing 5)	Clutch open Brake open	Drum is not fixed, doesn't turn, cable is in state to be pulled
III – Working position (see drawing 6)	Clutch closed Brake open	Drum is turning. Cable is spooling on the drum

Pulling dark string 2, band brake is being released. Pulling white string 1, drum 6 being on axes 5, through sleeve 7, will be clutched to chain wheel 8. Chain wheel is driven by tractor PTO through chain transmission 9. Drum starts turning and spooling the cable 10 on the drum.

To haul the logs out it is necessary to pull both strings at the same time. When strings are flabby, springs 22 and 23 will bring clutch and brake back into initial position: drum will stop and fix. Pulling cable off the drum, it is necessary to release the band brake, either pulling string 2 or pushing lever 3, and due to that locking teeth 11 and 12 of levers of clutch will lock to each other (see drawing 5).

3. PREPARATION TO THE WORK

3.1. Before connection to the tractor, check that nobody is standing between tractor and winch.

3.2. Joint winch to three-point linkage. By means of the screws of hanging mechanism of tractor, adjust stable position of the winch.

3.3. Connect the cardan shaft:

P=30 kW
n=540 r/min
L=560 mm

3.4. Start the tractor by switching on PTO shaft and being sure that winch is ready for work.

4. WORK

It is recommended to start working with logs or tree-trunks of smaller diameter in the beginning.

4.1. Support winch to the ground at the working place.

4.2. Mechanism of winch is in initial position (see drawing 4). To bring the winch into preparatory position (see drawing 5): release band brake 4 by pulling of the string 2 or pushing switching lever 3 into end position (as far as tooth 11 and 12 are finally locked to each other). Pull out the cable 10.

4.3. Fix the hooking chain around the log and fasten it to the cable.

4.4. To bring mechanism in initial position (see drawing 4) pull string 1 until locking tooth 11 and 12 are unlocked.

4.5. Pulling the strings 1 and 2 at the same time, haul the logs close to the winch.

4.6. To stop the drum, don't pull guiding strings 1 and 2 any more.

4.7. Fix the hooking chains into slots that have been located on upper board of the winch.

5. MAINTENANCE

Before cleaning, maintenance and adjustment of the winch, turn off the PTO of tractor and stop the engine.

5.1. After 4 hours workings check fasteners and tight them, if needed.

5.2. Every day lubricate the chain 9 (see drawing 2) by dropping the oil on links of chain. Recommended oil is industrial oil for general-purpose with characteristics as follows::

- kinetic viscosity at 50ºC 17-23 mm^2/sec
- viscosity index 85
- gelosing temperature under ºC -30
- ignition temperature ºC 180

For example: ADDINOL C32 or other analogues.

5.3. After 40 hours working, make following maintenance (look draws 2, 3 and 4):

- Lubricate with consistencial lubrication all lubricating nipples – two on tops of axis 5, one on each block wheel 13 and 14;
- Lubricate with consistencial lubrication driving cable 10, springs 22 and 23 of clutch and brake, driving chain 9 and locking tooth 11 and 12 of levers of clutch and brake;

NB! Use lubrications for general-purpose:

- dropping temperature ºC 180
- consistency (fall-cone test) from 265 to 295

- Lubricate the axis of inert brake by dropping oil from the oil- jug into the hole 29;

NB! Use as basic oil – mineral oil

- kinematical viscosity at 40ºC 60+5 m^2/sec
- ignition temperature ºC 200
- gelosing temperature under ºC -22

For example: ADDINOL CF2 or other analogues.

- Check the condition of cable and hooks.

5.4. Adjusting the clutch (see draw 3):

- untwist the fixing nuts 15 of the axis;
- turn the axis 5 clockwise (about half turn) by spanner, keeping the position of the axis 5 fix fastening nuts;
- check the free moving of the clutch pulling from the string 1.

5.5. Adjusting the brake (see draw 2):

- by turning the nut 16 located on the top of the band brake pull the band of brake against the drum and then tighten nut 17;
- adjust by means of adjusting bolts 18 the distance between the braking girdle 19 and the inner surface of braking band 20 to be equally 1 mm and then tighten nuts 21.

5.6. Adjusting the driving chain (look draw 2):

- release nuts 26 of the tightening sector 25 of the chain tightener 24;
- tighten the chain with the sector;
- tighten nuts of the sector.

5.7. Adjusting the inert brake (look draw 3):

- untwist nut 28 of the adjusting bolt 27 of inert brake;
- twist the adjusting bolt until inert brake touches the flange of drum 6;
- tighten the nut 28.

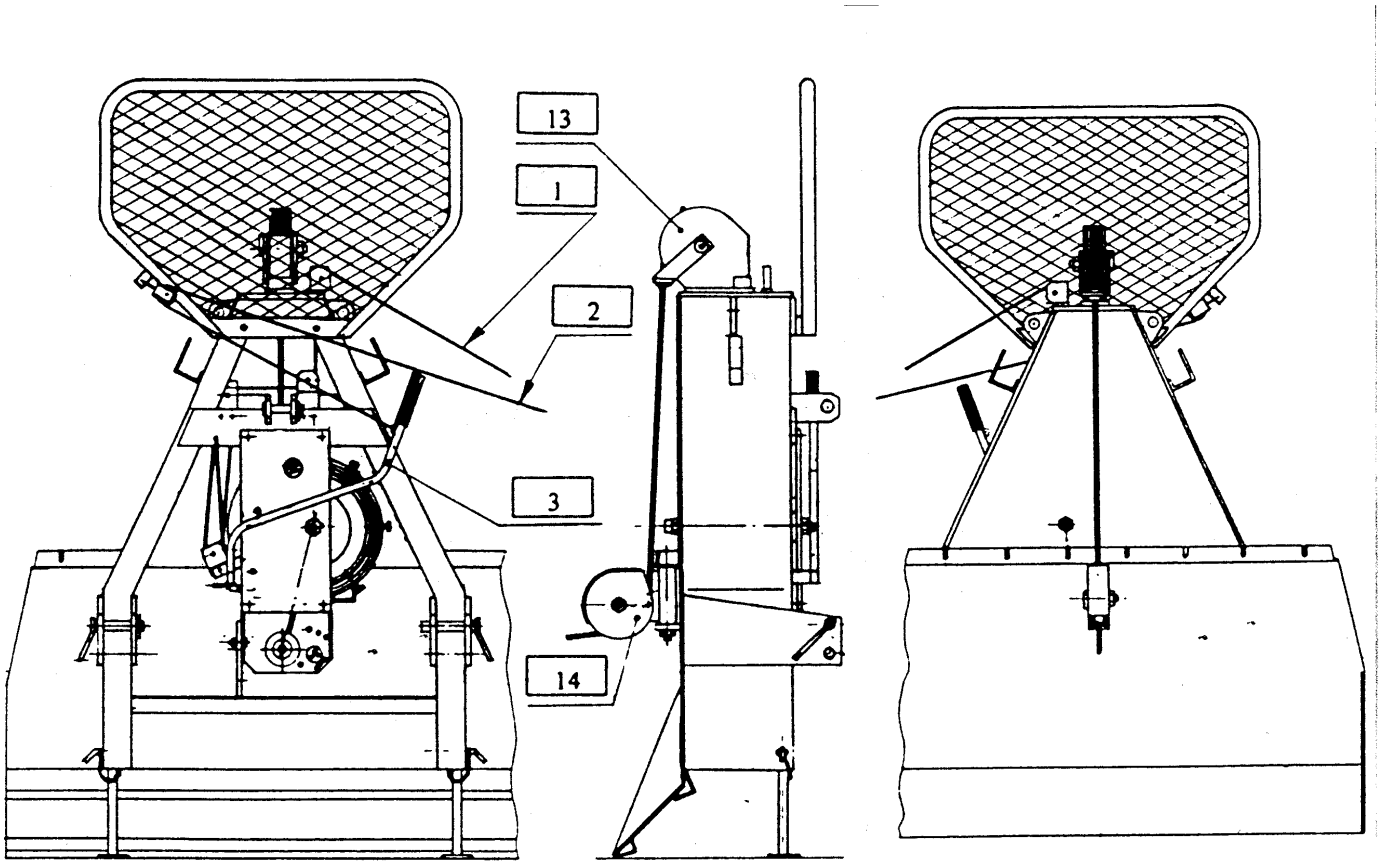
5.8. Once in a season make more complete maintenance:

-Demount winch and inspect conditions of all parts and components. Replace defected parts/components.

Spare part list MULTI Winch 5000

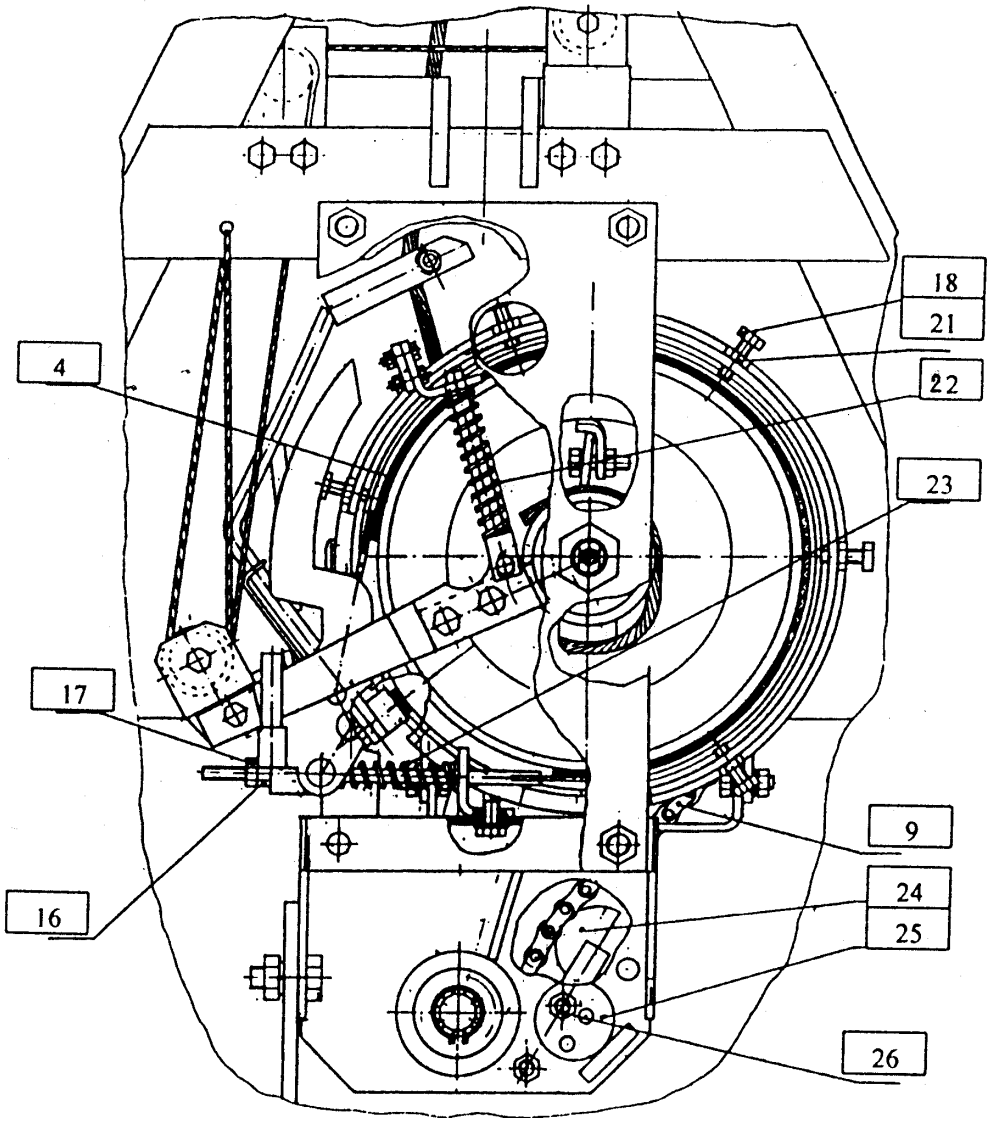
Draw 1 **WINCH 5000**

No.	Marking	Description
1.	075.10.00.000	Rope of coupling collar
2.	075.11.00.000	Coupling rope of clutch
3.	075.13.00.000	Coupling lever of belt brake
13.	075.05.00.000	Upper wire block
14.	075.06.00.000	Lower wire block



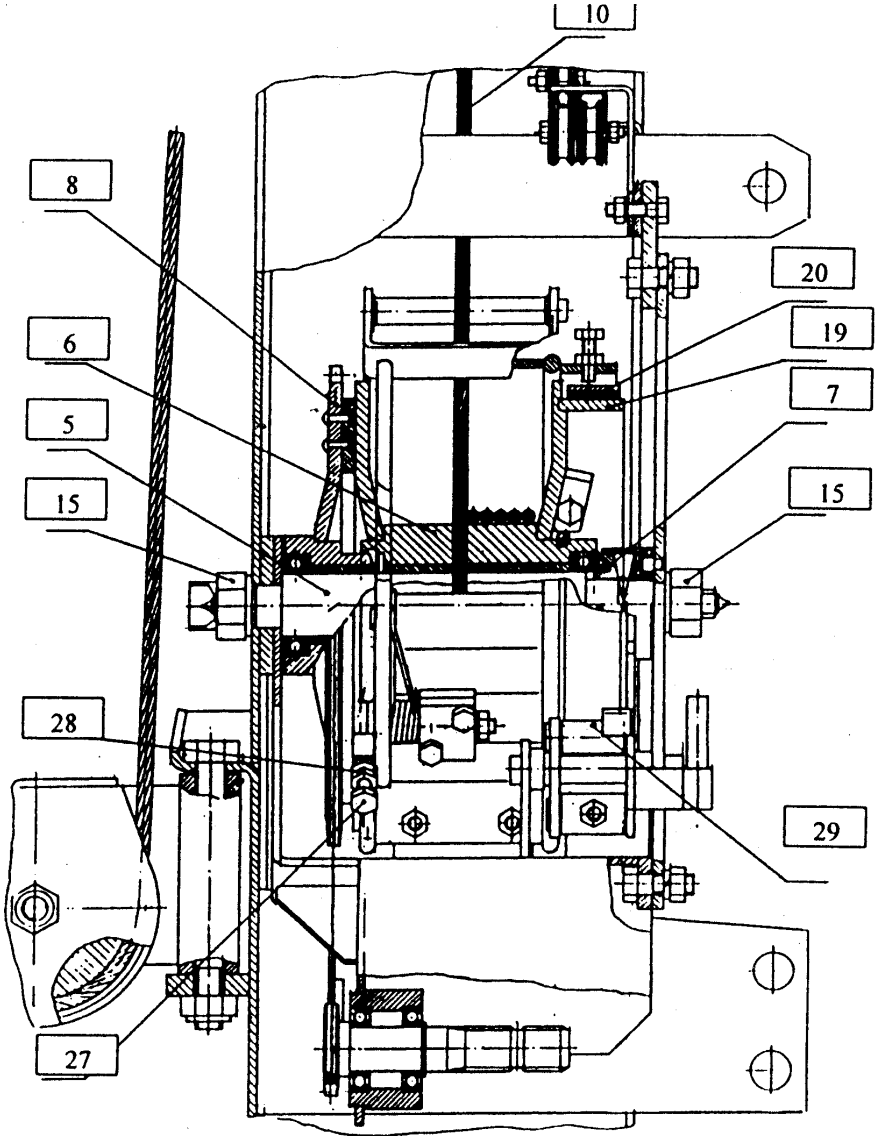
Draw 2 **WINCH 5000**

Nr.	Marking	Description
4.	075.01.05.200	Stopping belt
9.	075.01.14.000	Chain
16.	075.01.05.302	Tensor nut
17.		Nut M10
18.		Bolt M10 x 30
21.		Nut M10
22.	075.01.05.006	Spring
23.	075.01.05.006	Spring
24.	075.01.12.000	Chain tightener
25.	075.01.00.005	Disc
26.		Nut M10



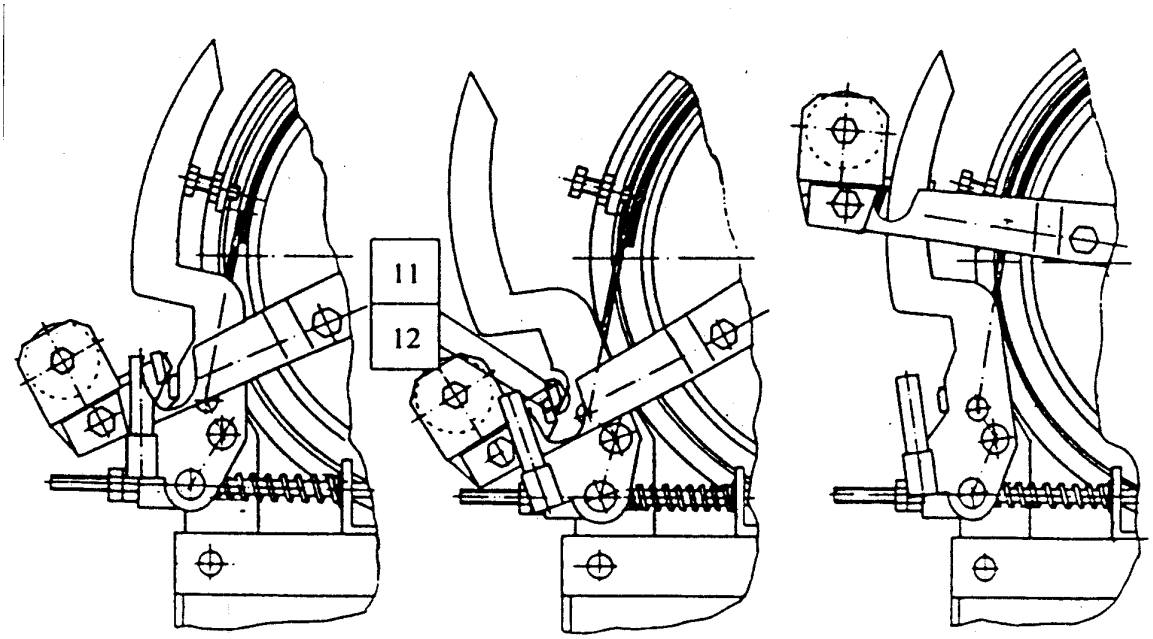
Draw 3 **WINCH 5000**

Nr.	Marking	Description
5.	075.01.00.001	Shaft
6.	075.01.01.000	Drum
7.	075.01.09.000	Coupling collar
8.	075.01.02.000	Driven chain wheel
10.		Wire ∅ 10 L=50 m
15.		Nut M24
19.	075.01.01.000	Stopping belt of drum
20.	075.01.05.200	Stopping belt
27.		Bolt M8 x 35
28.		Nut M8
29.		Oiling hole



Draw 4-5 **WINCH 5000**

Nr.	Marking	Description
11.	075.08.200	Governor of block holder
12.	075.01.05.100	Governor of belt brake's lever



EC-Certificate of Conformity

conforming to EEC Directions 98/37/EG

We TREJON FÖRSÄLJNING AB
(name of supplier) ….....……..

SE – 911 35 Vännäsby, Företagsvägen 9
….....……..
(full address of company – where this concerns authorized agents within the Common Market, also state the company name and manufacturer)

declare in sole responsibility, that the product

Winch MULTI 3000
Winch MULTI 5000

….....……
(make, model)

to which this certificate applies, conforms to the basic safety and health requirements of EEC Directions 98/37/EG,
(if applicable)
and to the other relevant EEC Directions.

— — —

….....……..
(title and/or number and date of issue of the other EEC Directions)

(if applicable)
To effect correct application of the safety and health requirements stated in the EEC Directions, the following standards and/or technical specifications were consulted:

EN ISO 12100-1 : 2003 EN ISO 12100-2 : 2003
….....……..
(title and/or number and date of issue of standards and/or specifications)

Håkan Johansson
Managing Director

Vännäsby, 01.01.2004
.....
(Place and date of issue)

.....
(Name and job function of authorized person)

Warranty- / assignment certificate

Warranty terms

General about warranty	-	The TREJON-warranty is limited by the conditions mentioned below and by the specific warranty terms issued by the supplier. These terms are in such cases attached to the operators manual for each machine.
Validity of warranty	-	Where the machine is bought for private use, the warranty provided by TREJON is valid for 12 months as of the date of purchase.
	-	In case of commercial use for 3 months.
The warranty cover	-	Damaged parts, which have broken down because of defective production operations of materials in course of normal use of the machine.
	-	The work-related expenditures, of the replacement of faulty spare part under the warranty, are compensated according to the official price-list of TREJON. TREJON may review the time for repair and adjust it tio a average time of other dealers to make similar repairs.
The warranty does not cover	-	Transport costs applicable to the machine or the parts.
	-	Travel costs.
	-	Possible costs that have been caused by the failure of the machine.
	-	If the machine has been modified by the owner.
	-	Faults, which have been caused by the machine's normal war and tear and are not related to production faults.
	-	Inexperienced use or use of spare parts, which are not original.
	-	The warranty is not applicable to parts which are subject to wear, for example hoses, sealing, oil, belts, batteries, chains, knifes etc.
Warranty procedures	-	Before you start large warranty works, contact TREJON AB.
	-	In case you want the warranty to be valid, the TREJON warranty claim must be completed and returned to TREJON AB no later than within 3 weeks after the repair have been carried out. Return of exchanged parts should only be sent on demand.
ATTENTION!		The warranty becomes valid after the WARRANTY / ASSIGNMENT CERTIFICATE has been completed and returned to TREJON within 14 days after the date of purchase.

Assignment certificate:

The buyer of the machine hereby verifies with his/her signature of having admitted the manual and studied it and been provided with the necessary driving instructions and passed after-delivery control.

PLEASE FILL IN!

Product: _____ Serialno: _____

Salesman: _____ Company: _____

Signature of salesman: _____ Date of purchase: _____

Name of buyer: _____ Telephone: _____

Adress: _____ Postcode: _____

City: _____ Country: _____

Date: _____ Signature of buyer: _____

Spare parts

Your choice is between “original” or “copies”!
Price is often the deciding factor. A “cheap” choice may well be an expensive one in the end.

Some reasons to choose TREJON spare parts:

- Quality and fit.
- Reliability
- Longer service life and therefore better economics
- Guaranteed availability through the TREJON sales partners

The TREJON original spare parts are specifically made for this equipment. The fitting and/or use of non-original parts and accessories may change the technical qualities of your equipment in a negative way. The manufacturer does not give any guarantee for damages caused by using non-original parts or accessories.

The guarantee does not cover arbitrary changes made on the equipment.

TREJON AB reserves the right to change or to improve shown models using technical or commercial reasons, without demands to carry out the same improvements on equipment already delivered. Pictures in the manual do not necessarily show the equipment as delivered.

Technical data, weights and measures are without obligation. Reservation for faults.

TREJON AB
Företagsvägen 9
SE-911 35 VÄNNÄSBY
SWEDEN
Tel: + 46 (0)935 399 00
Fax: + 46 (0)935 399 19