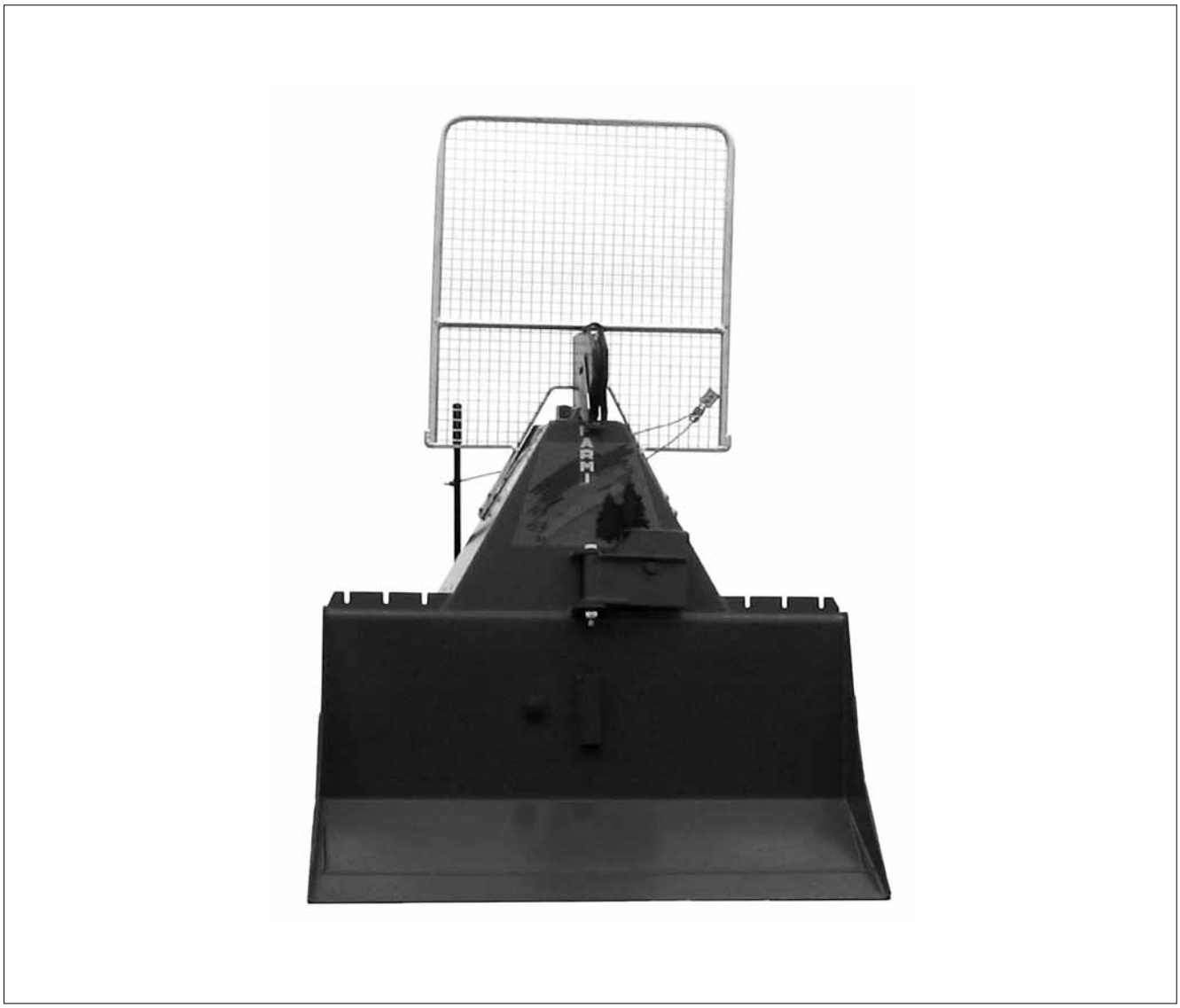
43101810 B-EN-010212-ER
TRANSLATION OF THE INSTRUCTION MANUAL

OPERATION, MAINTENANCE AND SPARE PARTS MANUAL

SKIDDING WINCH

FARMI 60



READ THIS OPERATION AND MAINTENANCE MANUAL CAREFULLY BEFORE USING THE MACHINE

Farmi Forest Corporation
Ahmolantie 6
FIN-74510 Iisalmi, Finland
Tel. +358 (0)17 83 241
Fax. +358 (0)17 8324 372
www.farmiforest.fi

WARNING SYMBOLS IN THIS MANUAL

- **imminent danger which could cause serious personal injury or death**

- **danger which could cause personal injury**

- **conditions or misuse that could damage equipment or machinery**

NOTE!

- **reminders, such as for performing checks or carrying out maintenance or repair procedures**

INTRODUCTION

This manual includes the information and maintenance instructions required for operating the machine in the optimal manner.

Although you have experience in using this kind of machinery, read the operation and maintenance instructions carefully since they include information enabling efficient and safe operation. Regular maintenance is the best way to guarantee the efficient and economical performance of the machine.

Each and every operator must read, understand, and follow all safety instructions and procedures.

CUSTOMER FEEDBACK

We are happy to receive your opinions and suggestions for improvements by mail, fax or e-mail. All implemented suggestions for improvements will be rewarded.

CE

EC DECLARATION OF CONFORMITY

Manufacturer:
Farmi Forest Corporation
Ahmolantie 6, FIN-74510 IISALMI, Finland

Person authorized to compile the technical documentation:
Name: Heikki Sirviö
Address: Ahmolantie 6, FIN-74510 IISALMI, Finland

Commercial name:
Farmi

Machine denomination:
Skidding winch

Machine type:
FARMI 60

Machine series number:

Herewith, we declare that the machine brought into circulation conforms with the pertinent requirements of the Machinery Directive 2006/42/EC.

The following harmonized standards were used for the conceptional design of the machine:
EN ISO 12100-1/2, SFS EN ISO 13857, SFS EN ISO 4254-1

Iisalmi	1.2.2012
(Place)	(date)

Juha Hallivuori

PRODUCT WARRANTY

Farmi provides a 12-months warranty on all Farmi products.
Register on our home page (www.farmiforest.fi) under FeedBack ("Product Registration" form) within 30 days after the receipt of the product to get full product warranty and additional information on your product. If it is not possible for you to register via internet, please register as follows: Complete the registration form on the last pages of this manual and return it to us within 30 days after the receipt of the product.

TABLE OF CONTENTS

When ordering spare parts, please indicate the machine's type from the machine plate, spare part's order number, description and quantity required.
Example. JL60, 54562053, Slide bearing, 2 pc

GENERAL SAFETY INSTRUCTIONS

These safety instructions are meant for the owners of FARMI equipment, as well as those who operate, service or repair it.

The instructions help with:

- using the machine safely, appropriately and effectively.
- identifying, avoiding and preventing potentially dangerous situations.

The manufacturer supplies an instruction manual, which must always be available at the place of operation of the machine. Each user must read the safety, maintenance and operating instructions before operating the machine, and comply with these instructions at all times.

Ensure that every operator of the machine is familiar with the content of the instruction manual and situation-specific safety instructions, and has been suitably trained before operating the machine.

The machine complies with technical requirements and applicable safety regulations. However, incorrect use, maintenance or repair of the machine may cause risks.

In addition to the instruction manual, remember to comply with regulations of the local occupational health and safety authorities, and with your country's laws and decrees.

The manufacturer is not liable for damages caused by:

- incorrect, negligent or inappropriate use of the product.
- non-original spare parts.
- normal wear and tear.
- misuse caused by an untrained person's improper actions.
- alterations made without the manufacturer's permission.

Written authorization must be requested from the manufacturer for any alterations to the machine.

STARTING

- Familiarize yourself thoroughly with the use, operation and controls of the machine and its equipment before starting.
- Familiarize yourself with the capacities and limitations of the machine and its equipment.
- Do not use the machine unless you are completely familiar with its operation.
- Be aware of the machine's danger zones.
- During operation, prevent bystanders from entering the danger zone.
- Ensure that each operator has the necessary safety equipment, such as a helmet, safety goggles, work safety boots and suitable protective clothing.
- Never wear loose clothing around moving parts. Protect long hair!
- Ensure that work is carried out according to the stipulations of applicable occupational health and safety legislation.
- Before starting up or using the machine, ensure that it cannot cause a risk to other people or property.
- Perform a safety check on the machine before every use. If you observe any faults or deficiencies, repair the machine immediately.
- Before operating the machine, ensure that there are no foreign articles in it.
- Place the machine on a hard, level surface for operation. In the winter avoid working in slippery areas.
- Before mounting and using the machine, check the PTO drive shaft for correct condition and attachment.
- Never use a faulty or deficient machine.

TRANSPORT

- Before driving with the machine, ensure the safe mounting of the machine. Make sure that the journals are seating correctly and that the pins are tight. Check the tension of the lower link stabilizers.
- Before driving with the machine, make sure that the required lamps and reflectors as well as the slow moving vehicle sign are attached correctly. Moreover, the lamps should be checked for correct functioning.
- Before driving with the attached machine, make sure that the hydraulic unit of the machine is depressurized (unless otherwise instructed in the operating instructions).
- When driving on public roads, always observe the valid traffic regulations. The travel speed must be adapted to the specific conditions.
- When driving, please take into consideration the additional mass resulting from the machine's weight. It may affect the reactions, the steerability and the braking function of the tractor.
- Please note that the machine rear sways when turning.
- Pay attention to the machine's height near bridges or other height restricting objects.
- When backing off, the machine may obstruct the rear view. Exercise extreme caution. If necessary, ask a flagman to help you; he can indicate the required distances.
- It is prohibited for other people to ride on the machine.

OPERATION

Many occupational accidents take place in abnormal circumstances. Therefore it is important to take into account all the possible circumstances that may arise during operation of the machine.

- Depending on the machine's type, it will have diverse safety devices and protectors. These are meant to protect the machine and its operator, and they must never be removed or altered. Never start up or use the machine without all the safety devices and protectors in place. Also check the universal joint's safety equipment and joins.
- Never insert any body part into the machine with the engine running.
- If any faults arise that may jeopardize occupational safety, turn off the machine.
- During operation, the machine's operator is responsible for safety in the whole work area. Work may not be carried out in the presence of any factors that jeopardize occupational safety.
- Exercise extreme caution when hitching / unhitching the machine from a tractor/trailer.

The machine's operator must have constant, unobstructed visibility of the work area. If this is not possible, the operator must work with an assistant.

- Look out for moving parts when the machine is in operation.
- Secure the machine against unauthorized and accidental operation (e.g. moving when parked) whenever it is left unattended.
- Never leave the machine running unattended.
- Avoid causing fast, stroke-like loading.
- Never exceed the given operating values.
- All safety and warning signs on and in the machine must be legible and intact.
- The machine may not be operated by persons who are unwell or under the influence of drugs or alcohol.

MAINTENANCE

- The machine may only be serviced and repaired by professionals.
- Electrical and hydraulic faults may only be repaired by authorized professionals.
- In cases requiring welding, contact the manufacturer.
- Turn off the tractor engine and disconnect the universal joint before beginning service or maintenance actions.
- Before any maintenance work, turn the main power switch of the tractor to OFF.
- Ensure that there is no pressure in the hydraulic system.
- Take out the key from the tractor's ignition for the duration of the servicing or maintenance. Check that the power is off from the machine you are working on.

- When servicing the machine, place it on a level surface and ensure that it cannot be moved.
- Observe the service intervals and annual safety inspections.
- All spare parts and equipment must fulfill the manufacturer's requirements. This can be guaranteed by using original parts.
- Put all safety devices back into place immediately once servicing or maintenance is complete.

When lifting the machine, check that the lifting/hoisting equipment is in perfect working order. Check the weight of the machine before lifting it. Choose lifting trajectories so that they do not cause any danger.

Many countries have specific legislation on lifting, hoisting cables and hoists. Always comply with local safety regulations.

OILS AND LUBRICATION

- Always use the oil types recommended by the manufacturer. Other types of oil may cause faults or improper operation of the equipment, which could lead to serious damage to people or property.
- Never mix different liquids or oils.
- Always follow the manufacturer's lubrication instructions.
- Use control equipment carefully until the hydraulic oil has had time to reach its operating temperature.

SAFETY INSTRUCTIONS FOR HYDRAULIC CIRCUITS

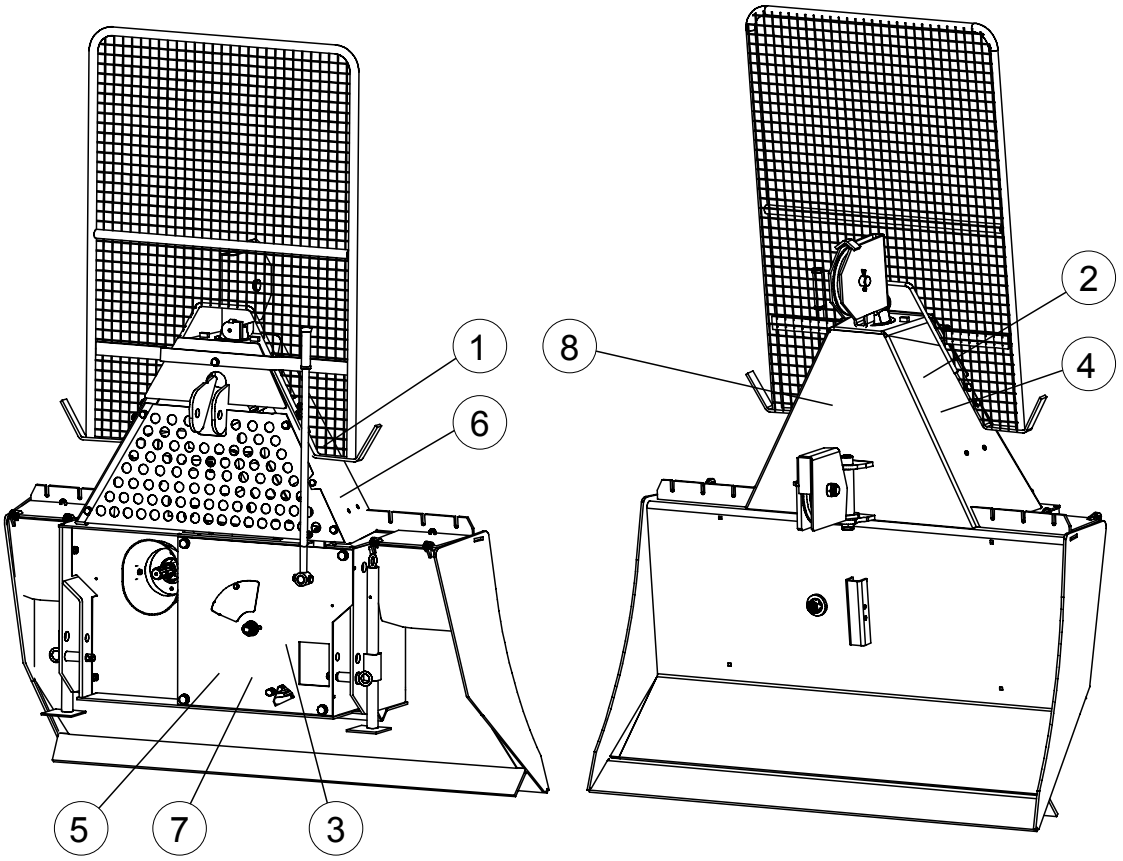
1. Work on hydraulic equipment may only be carried out by professional hydraulic engineers.
2. Be cautious when using the equipment in cold conditions.
3. Check the machine for leaks. Do not use the machine if there is a leak from any system. Check all hydraulic hoses – particularly those which are bent during use – and replace any that are in poor condition or have leaks. Ensure that all joins are tight and that the lines are not damaged. Check that all protective caps and filler caps are closed properly. Check the hose sheathing for damage.
4. Check that all hose connectors, lengths and qualities comply with applicable requirements. When replacing or repairing hoses, use original parts or hoses and connectors recommended by the manufacturer. Check particularly that the pressure classes of the hoses and connectors are suitable to the operating pressure levels.
5. Check that all safety devices such as pressure relief valves, etc., are in place and work properly. Familiarize yourself with their use. Safety systems may never be bypassed.
6. Check the main hydraulic parts daily, and always after a fault. Replace any damaged parts immediately.
7. If a component is damaged, clean it before repairing it. Do not use solvents when cleaning parts.
8. Do not attempt to carry out repairs that you are not fully familiar with.
9. Never carry out repairs of the hydraulic circuit when the system is pressurized. When pressurized, the oil spray can penetrate the skin and cause mortal danger.
10. Never work below a device or component that is only being held up by hydraulics. Use separate supports when carrying our maintenance or repairs. Do not disconnect cylinders or their valves until the machine is well supported.
11. Most hydraulic oils do not evaporate easily. Risk factors include hot oil, spills and oil mist (pressurized).
12. If oil gets into your eyes, rinse with plenty of water and contact a doctor.
13. Avoid prolonged or repeated contact with your skin.
14. If sprays or contact with the skin cannot be a voided, use protective gloves, goggles and clothing as necessary. Do not use oily clothing.
15. Avoid discharging hydraulic oil into the environment, as it can pollute waterways and the groundwater. If biodegradable oil is to be used, please contact the manufacturer beforehand and have the suitability of your equipment for the operation with biodegradable oil confirmed by him before such oil is used.
16. Store the oil in sealed containers provided by the manufacturer. Try to transfer the oil directly from its container into the tank.
17. If the oil must be passed through other containers, ensure that they are completely clean. Caps, funnels, sieves and filling holes must also be clean.
18. Never store oil outdoors, as water could condense in it.
19. Always dispose of oil in a suitable container, never into the environment!

SAFETY INSTRUCTIONS FOR WINCHES

- Check that the wire cable is in good condition before using the winch (check for corrosion, sharp bends, breakage and thickness of strands). If a cable snaps, it can whip towards the operator or away from the winch.
- Operate the winch with a guide cable at least 2 meters away to the side of the machine. Do not operate the winch from the tractor cabin unless a safety net has been installed.
- When winching downhill, the pulling must be done from the side using an additional idler.
- When winching on a hill, do not follow the load from below.
- Side-winching must not be done at angles of more than 30 degrees.
- It is extremely dangerous to be in the space between a load attached to the wire cable and the winch.
- Check that all bystanders are at a safe distance of at least 15 meters whenever the machine is running. Place warning signs on approaching roads.
- Never touch the wire cable by hand during winching.
- The maximum load must be adjusted to conditions.
- Check that the winching chains are carefully attached. Do not attach the wire cable directly to the load.
- The safety coefficient must be 2.5 for cable-type fasteners and 2 for chain-type fasteners.
- Disconnect the transmission before examining the machine in the case of any faults.
- Ensure the wire cable is as short as possible during transport.
- The winch may only be used for winching and hauling. Do not use the winch for lifting loads.

STICKERS AND PLATES

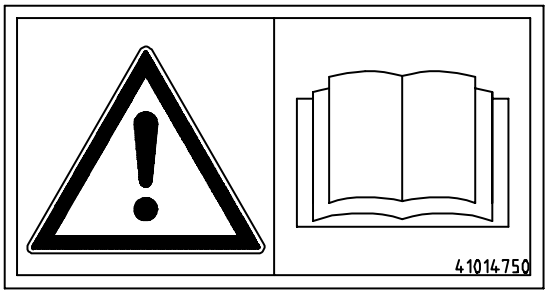
The following plates and labels must be correctly attached to the machine.
Missing safety plates / labels must be replaced immediately.



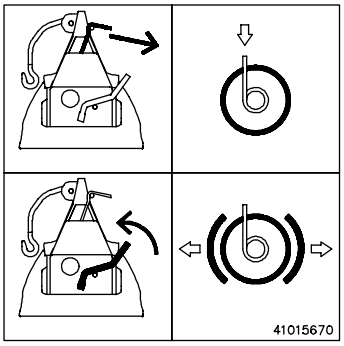
Farmi Forest Corporation
Ahmolantie 6
FIN-74510 IISALMI
FINLAND

Hersteller / Manufacturer	FARMI FOREST CO		
Typ / Type	JL 60		
Triebwerkgruppe / Duty cycle	EM	1	40146830
Zugkraft innen / Bare drum line pull	kN	60	
Zugkraft aussen / Full drum line pull	kN	26	
Betr.-Druck / Max. pressure	bar	120	
Fabr.-Nr. / Serial number			
Baujahr / Manufacturing year		20	
Erf. Anttriesleistung / Input power	kW	45	
Seildurschmesser/ Cable diameter	mm	12	
Rech. Bruchkraft/Min. rope breaking load	kN	128,9	
Gewicht / Weight	kg	475	

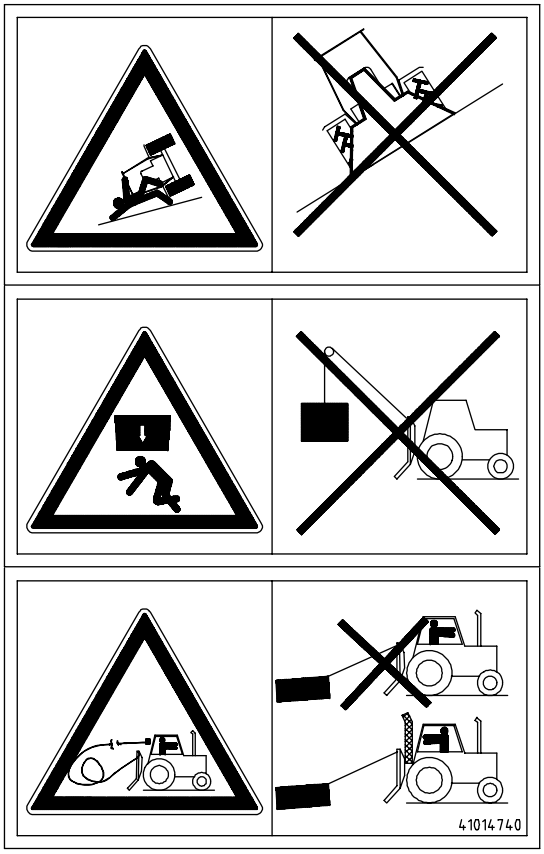
1. Machine plate JL60 (40146830))



2. Note! See manual for operation and maintenance. (41014750)



3. Controls (41015670)

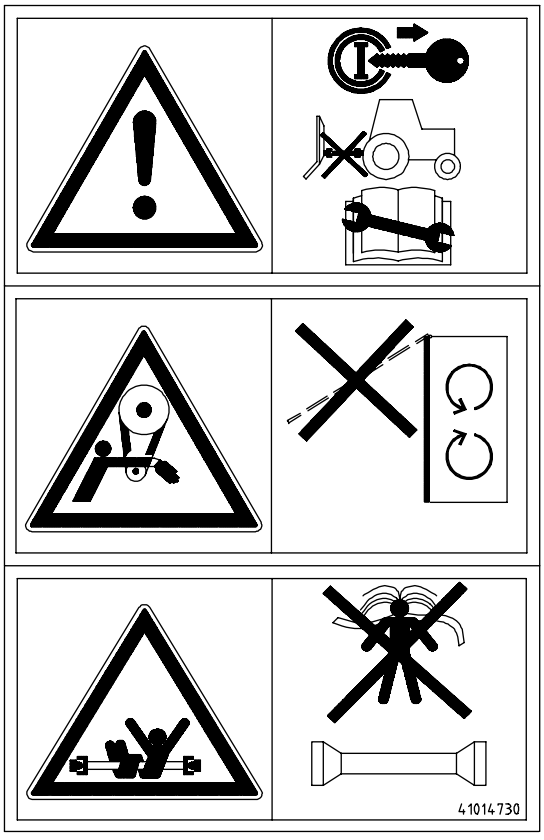


4. Nr 41014740

Falling danger!
Do not work in an oblique position.

Crushing danger!
Do not use the winch for the lifting.

Watch out for a breaking cable!
Always use the protective screen.

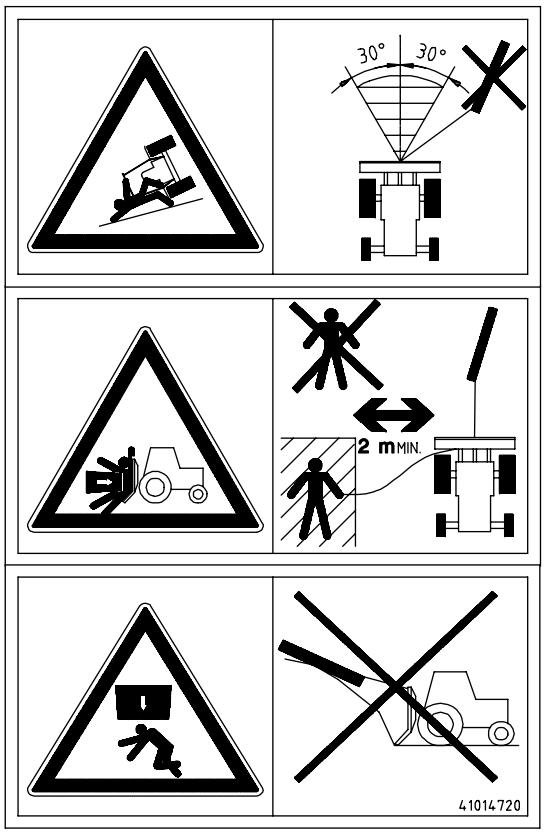


5. Nr 41014730

Note!
Before doing maintenance work turn off the motor, remove the ignition key and disengage the P.T.O.

Accident danger!
Keep the safety equipment where it belongs.

Winding danger!
Do not wear too loose clothes and keep the hair bound inside the cap.

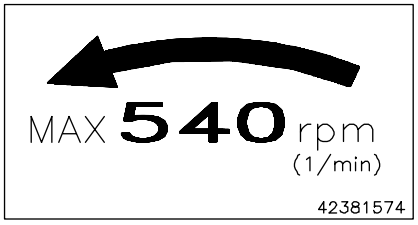


6. Nr 41014720

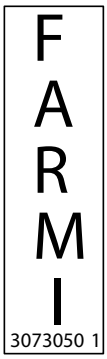
Falling danger!
Do not winch at sideways angles exceeding 30 degrees.

Crushing danger!
Do not stand in front of the winch when working. Stand on the side at a distance of at least 2 meters (6 ft) from the winch.

Crushing danger!
Do not winch downhill.

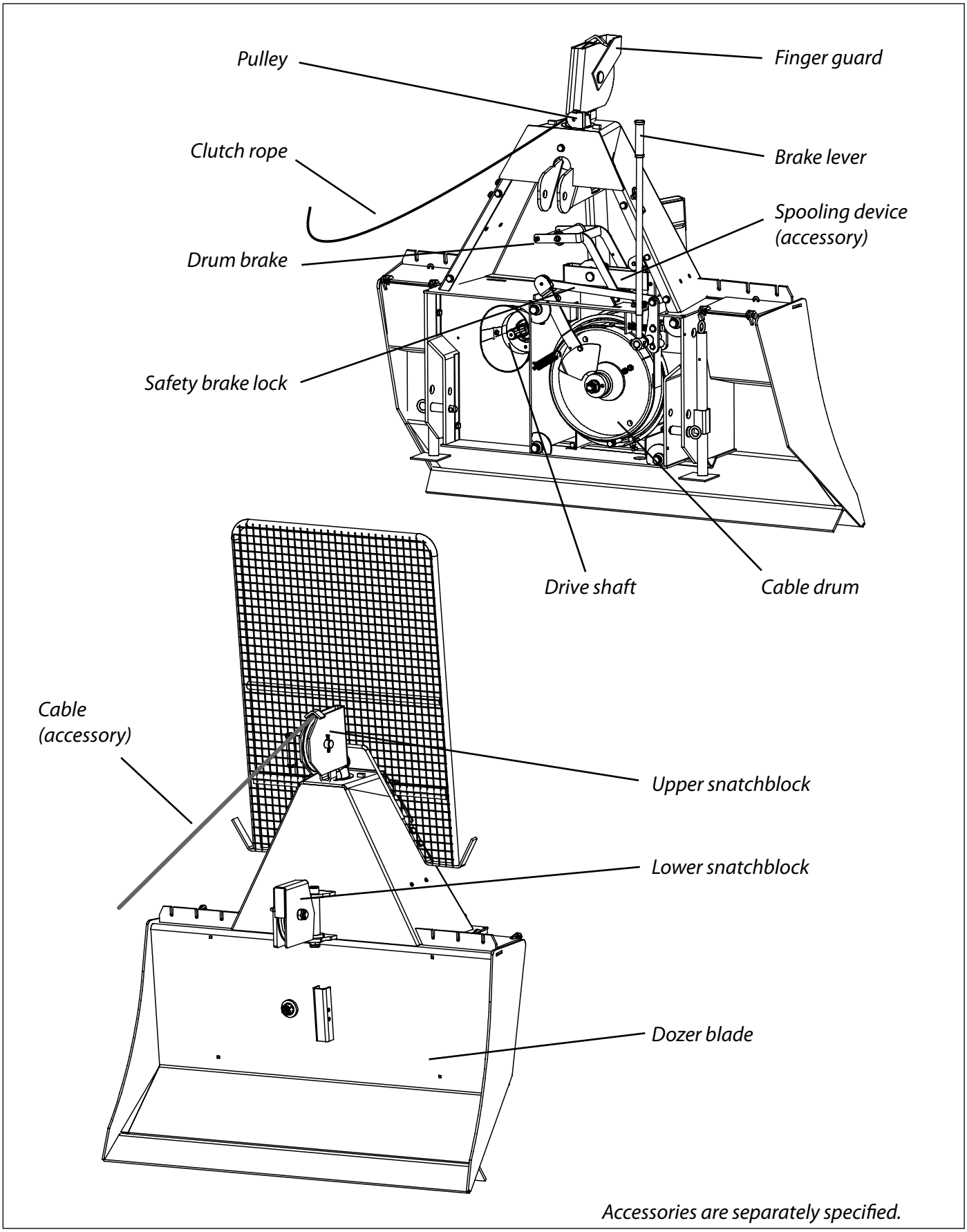


7. Maximum rpm (42381474)



8. FARMI-sticker (30730501)

MAIN PARTS

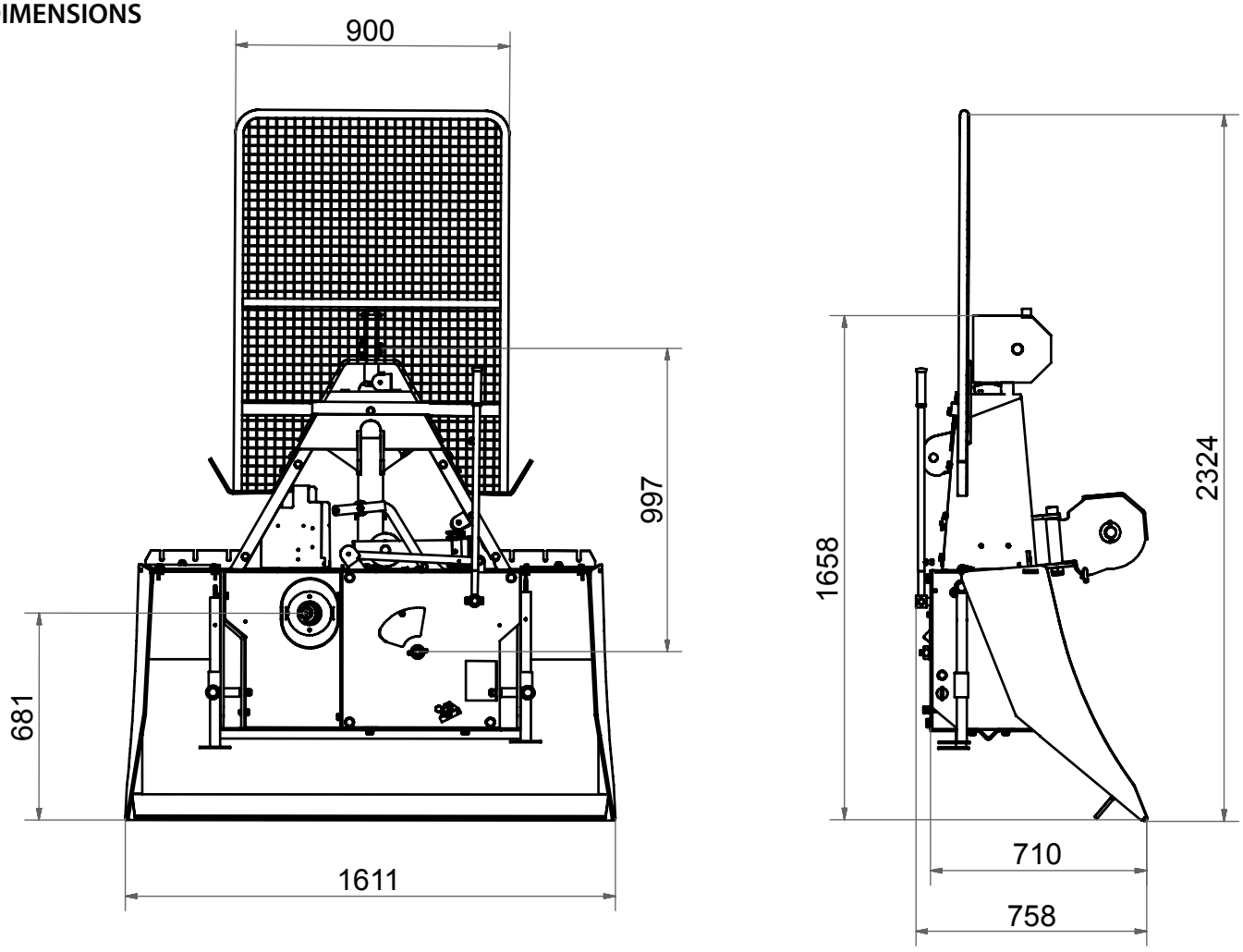


Accessories are separately specified.

TECHNICAL SPECIFICATION

	JL60
Tractive power Cable drum empty (maximum) Cable drum full (minimum)	60 kN 26 kN
Cable capacity Ultimate strength of the cable 1,96 kN/mm^2	130 m, ø 10 mm cable recomm. 100 m, ø 12 mm cable 70 m, ø 14 mm cable
Winching speed 350 rpm 540 rpm	0,36 - 0,82 m/s 0,56 - 1,26 m/s
Weight(without cable)	475 kg
Clutch	Mechanical friction plate clutch with heat sink
Power transmission	Universal shaft from tractor
Mounting	To 3-point hitch(Cat.I and Cat.II)
Power needed	min. 45 kW (60 hp)

DIMENSIONS



MOUNTING

MOUNTING TO THE 3-POINT HITCH

The winch can be mounted to the 3-point linkage of any tractor. Power transmission is obtained through universal shaft from tractor.

ASSEMBLY OF THE PTO SHAFT

CAUTION!

If the PTO shaft is too long it may get pressed when the three point hitch is lifted up. This may cause damage to the bearings of the winch or to the PTO of the tractor. The PTO shaft must not be too short in any position.

The PTO length is suitable, if the pipes do not reach the bottom.

PTO is optional equipment.

1. Mount the winch to the 3-point hitch of the tractor.
2. Raise the winch high enough to get the PTO shaft of the tractor and the winch to a horizontal level.
3. If you have a shortened PTO shaft available, put one end into the drive shaft and check that the distance of the locking of the other end. Take into account the additional clearance of approximately 20 mm (0.78").
4. Fasten the other end of the PTO shaft in its place and also move the winch sideways at the same time securing that the axis does not base.

SHORTEN THE DRIVE SHAFT

CAUTION!

Both PTO halves must be shortened by equal amounts.

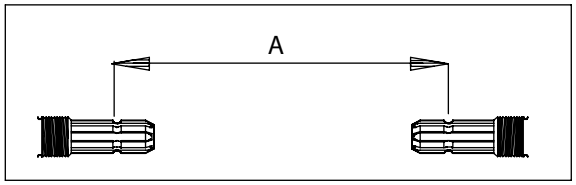


Fig. 1. Measure A when the drive shafts are nearest to each other.

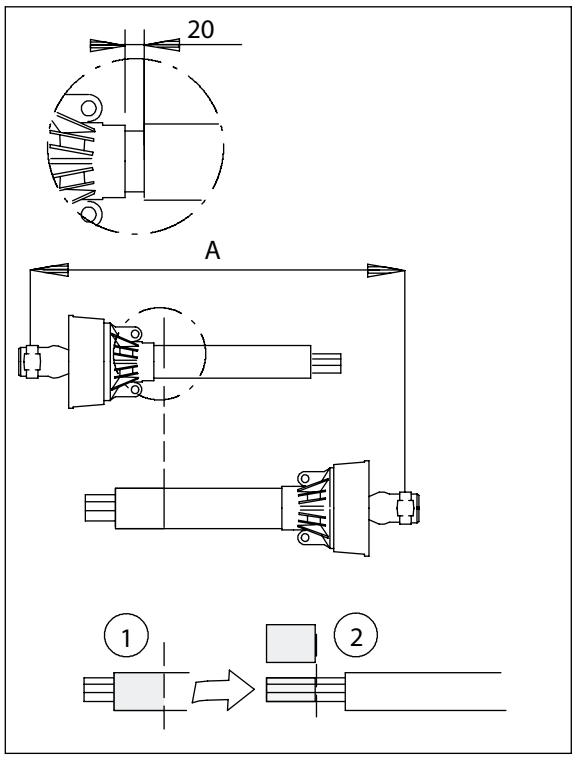


Fig. 2. Shorten the drive shaft

- First cut the thicker cover to a correct lenght (1). Remember 20 mm (0.78") clearance. Then cut away the same amount from the form pipe. Make a similar shortening to the second half of the PTO shaft. Remove the burr with the file.
- Connect the PTO shafts within each other. Make sure by moving eevator carefully up and down that the shortening of the axis is sufficient. Check that the axis have 20 mm (0.78") latitude.

FASTENING THE CABLE TO THE DRUM

1. Tape the cable end to prevent loosening of the core wires.
2. Pass the cable through the hole in cable guard, over the upper snatch block and then inside the winch.
3. Insert the cable from behind the roll of the drum brake.
4. Pull the cable onto the drum from the left hand side (the same side as the clutch lever).
5. Insert the cable end under the wedge of the cable lock device. See fig. 3.
6. Tighten the cable lock screw.
7. Winch the cable on the drum. REMEMBER THAT THE CABLE HAS TO BE LOADED HEAVILY, WHEN WINCHING THE CABLE BACK ON THE DRUM.

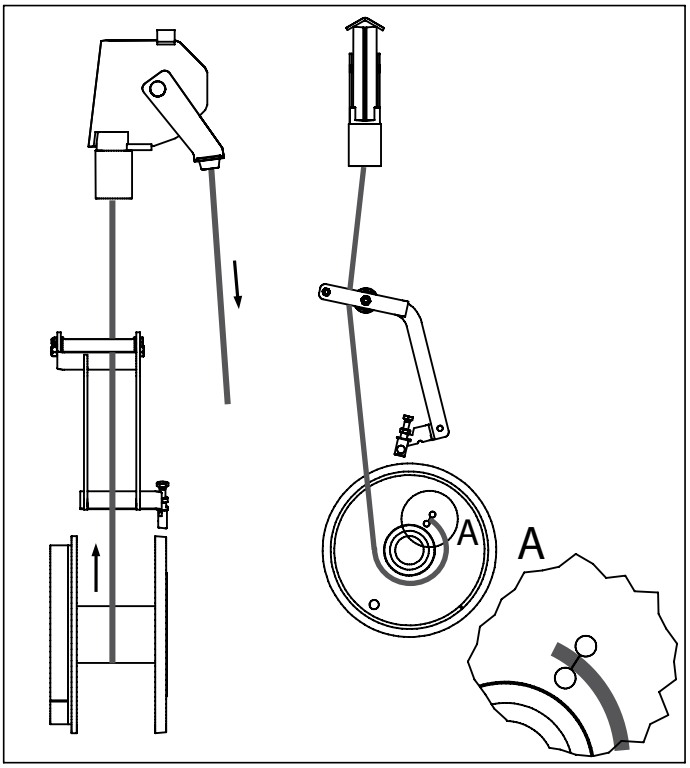


Fig. 3. Fastening the cable

Do not use longer cable than needed. With correct length you achieve good pulling strength and proper winding of the cable.

PRE-OPERATION CHECKS

CABLE

Check that:

- the cable is faultless (breakage risk).
- there are no twists or kinks (breakage risk) in the cable.
- the cable has been properly fastened to the winch.

WINCH

Check that:

- all the pins and lynch pins are in place.
- all bolts and nuts have been tightened.
- roller chain is tight.
- the drum brake has been properly adjusted.
- the clutch has been correctly adjusted.
- lubrication is carried out correctly. See lubricating instructions.

MOUNTING TO THE TRACTOR

Check that:

- the tractor's top link point is locked. (with the help of a support, if necessary).
- the pins are properly secured.
- the side limits are locked and slack removed from the lifting arm.
- the PTO-shaft is suitably long, properly fastened and the shield chains attached.
- the winch support legs have been raised.

CONTROLS

WARNING!

Get acquainted with the controllers of the winch before the use, tests the stopping functions of the winch and the tractor and all other functions. Each function has to be in perfect condition.

WINCHING

- The winch is equipped with a clutch, which will be used by the control rope. When the user draws the control rope, the winch begings to draw in the cable. Winching will stop when the rope is released.
- The end of the cable drum is equipped with a friction clutch, which slips, if the load is too heavy. This prevents cable break or damages if the load gets caught.
- The cable can be pulled out when the safety brake is released.

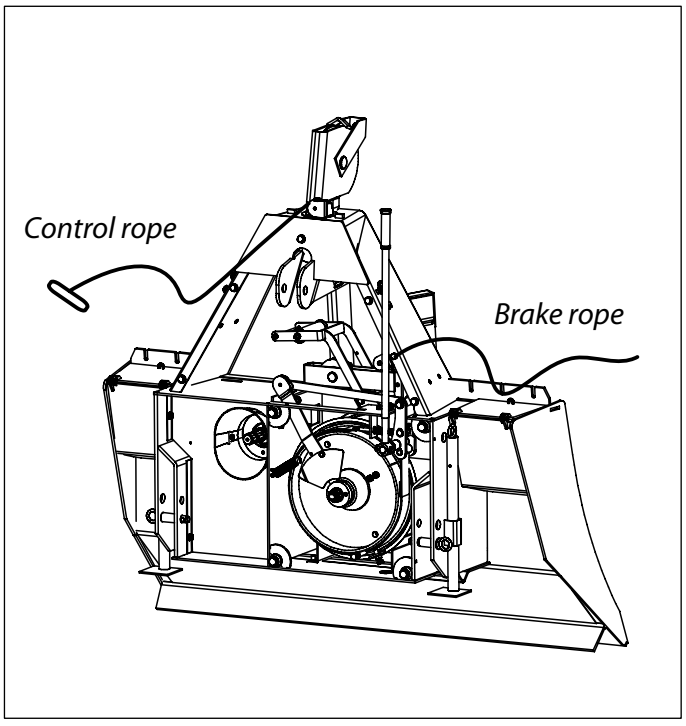


Fig. 4. Controls

OPERATION

SAFETY PRECAUTIONS

WARNING!

Read the operation instructions before operating this machine! It is the owner's responsibility to instruct all equipment operators and support personnel in the operation of this winch.

1. Choose a horizontal, hard based skidding route for the tractor. Avoid steep slopes, especially when winching from the side. Check that the winching trail is clear and that the tractor's parking brake is on. Do not run the tractor at a high idle when winching. Maximum P.T.O speed is 540 rpm. Ensure that the logs can be drawn freely. Be especially careful when working on slopes. Avoid winching sideways at angles exceeding 30 degrees. Use snatchblock which is fastened to the tree if needed. (See fig. 7.)
2. The safest place for the operator is at the back left side of the winch, allowing good visibility. See fig. 5. Take care that there is no one in the working area.
3. The tractor must have a ROPS cab and front end weights.

- Always position the tractor on a flat ground in line with the direction of the pull (see fig. 5.). Avoid working in steep terrain. Ensure nothing is blocking the path of trees.
- Avoid an unnecessarily strong pulls, the tractor may roll over.
- Adjust the tractors rpm's according to the conditions.
- Use a shield between the seat and the winch (e.g. safety cab or protective screen) if you run the winch from the tractor seat.
- Use agreed signals when working in groups.

4. When you use a light tractor, there is a very big risk that the tractor will roll over. To avoid that risk, you must add extra weight to the front of the tractor.

- The falling danger of the tractor can be reduced by winching through the lower snatchblock.

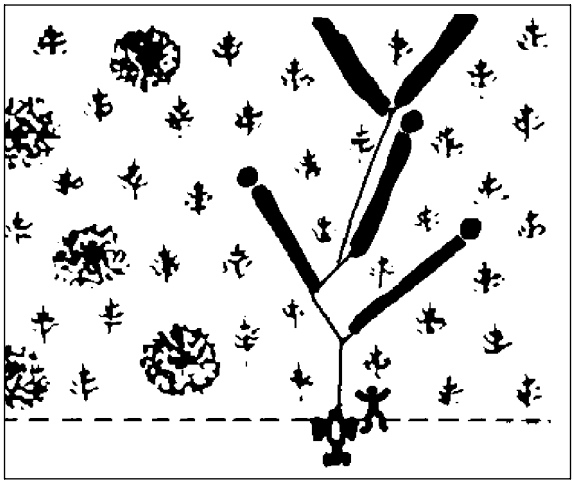


Fig. 5.

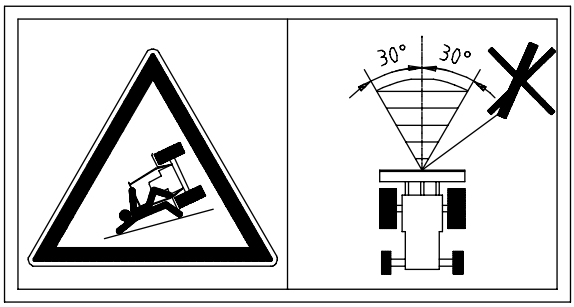


Fig. 6. Do not winch sideways at angles exceeding 30 degrees. The tractor can tilt.

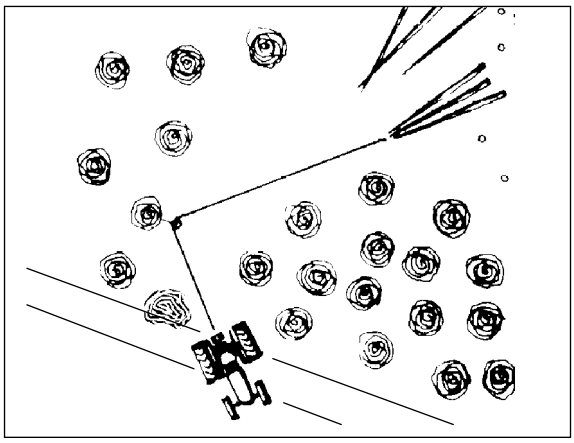


Fig. 7. Use a snatchblock to avoid winching sideways.

PRE-OPERATION CHECKS

MOUNTING AND USE OF THE LOWER SNATCHBLOCK

- Usually the logs are winched in through the upper pulley of the winch. This lifts the logs and they dig less into the ground. The weight of the load also pushes the blade into the ground thus anchoring the winch and the tractor to the ground.
- The winch has a lower snatchblock. The main use of the lower snatchblock is to lower the pulling point. This enables larger loads to be skidded out . For skidding out the load the cable is transferred to the lower snatchblock.
- Several logs can be hooked up and winched in at one time by means of keyhole sliders on the cable. The skidding chain should have a pin on the end, which makes it easier to pass the chain underneath the tree. See fig. 8.

When using the lower snatch block make sure that it follows the direction of the cable. Otherwise the cable will be damaged, when it is pressed between the snatch block and the lower snatchblock frame.

When wInching an unloaded cable, make sure that the finger guard doesn't rise up with cable and doesn't cause cable to crosscut.

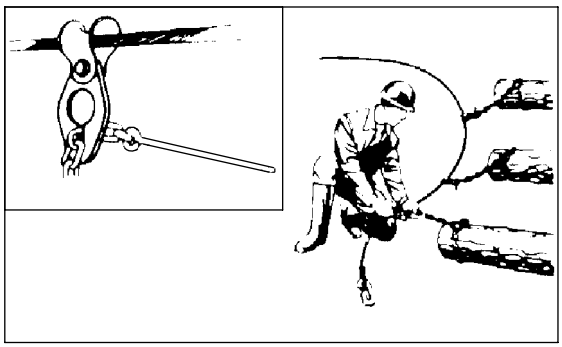


Fig. 8. Use a keyhole sliders to winch several logs at one time.

WINCHING

CAUTION!

Before using the winch, you have to pull the cable completely out of the drum and winch the cable back on the drum with a heavy load. Otherwise the cable will be damaged.

- Park the winch and tractor on level, stable ground. Lock the brakes of the tractor before winching. Lower the 3-point hitch so that the dozer blade anchors the winch to the ground. See fig. 9.

CAUTION!

Do not let the dozer blade sink too deeply into the ground, so that the PTO shaft is not damaged.

- Before using the skidding winch, make sure that the lower snatch block, the upper snatch block and the finger guard move freely.

1. Draw the cable to the load but avoid twitches. Do not draw out too much cable to avoid loose spaces when the cable is reeled in.
2. Start the tractor, turn the PTO on. Use the winch with the control rope and stand in a safe place at a distance of at least 2 m (6 ft) from the winch. Use the upper snatchblock when winching.
3. Operate the clutch firmly. Avoid sliding the clutch to avoid warming of the clutch. Stop winching by letting go of the control rope for the leave. The clutch will slip when the load is heavier than the selected pull. This prevents damages to the cable or winch. Avoid extra large loads. The winding speed depends on the number of revolutions of the tractor. Do not wind too fast.
4. Stop winching when the logs are at about 1,5-3 m (5-10 ft) from the tractor. Install the cable on the lower snatch block.

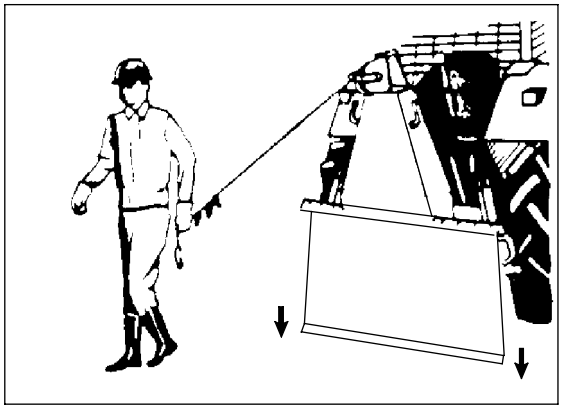


Fig. 9. Anchor the dozer blade to the ground.

SKIDDING

1. Start the tractor, engage the power output. Pull the control line and winch-skid the logs onto the lower sheave. The load is locked by stopping the output, by which the brake is engaged. Do not release the safety brake!
2. Turn off the P.T.O.
3. Raise the 3-point hitch so that the logs come off ground (fig. 12.).
4. Move the logs to the desired place.

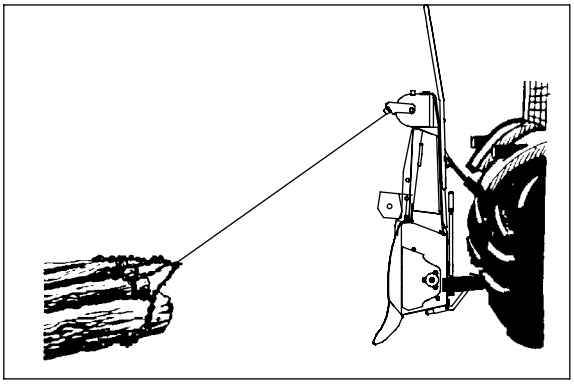


Fig. 10. Winching over the upper snatchblock

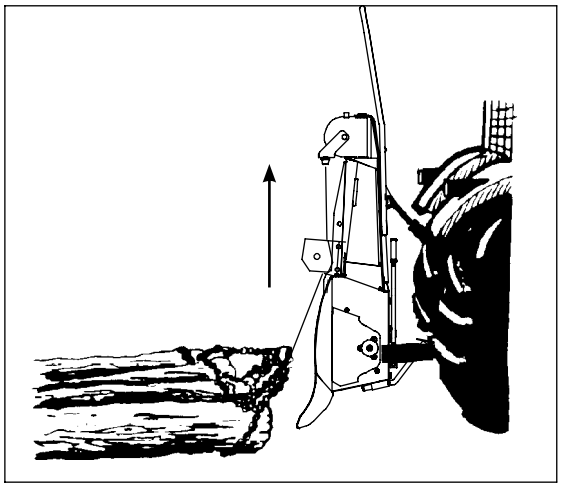


Fig. 11. Cable on the lower snatchblock

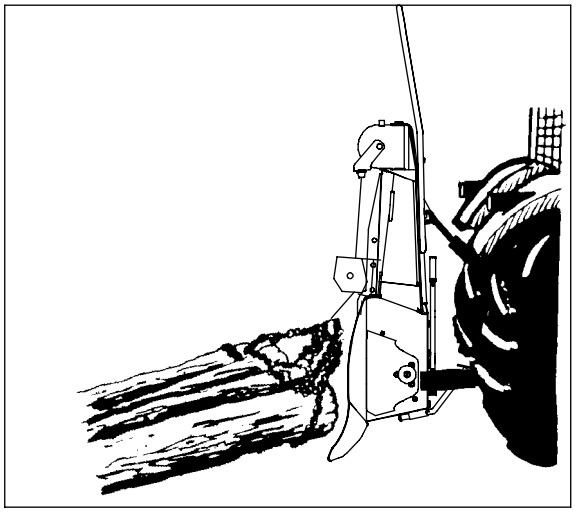


Fig. 12. Winching over the lower snatch block

WORKING IN ROUGH TERRAIN

Drop the load before you reach bad terrain. Drive through the bad spot. Winch in the load again (Fig. 13.).

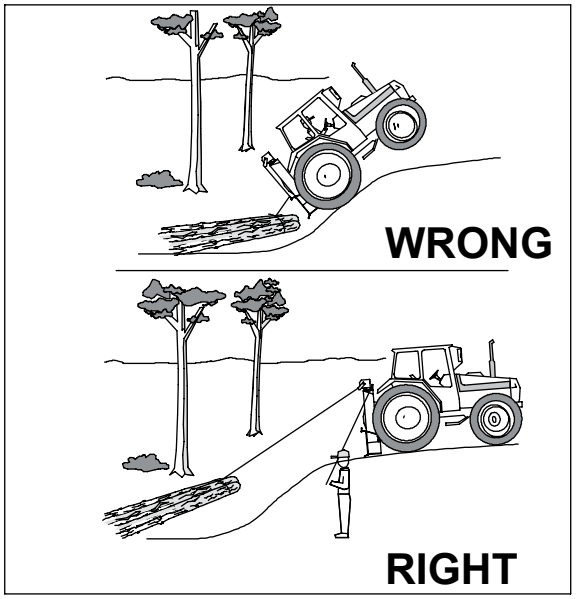


Fig. 13. Driving through bad terrain

IF YOU GET STUCK WITH THE TRACTOR

1. Drop the load. Drive the tractor to firm ground. Winch in the load.
2. If you cannot move the tractor, release the load and winch the tractor out. When winching the tractor out, always run the cable under the lower pulley. Support the winch by driving the tractor.

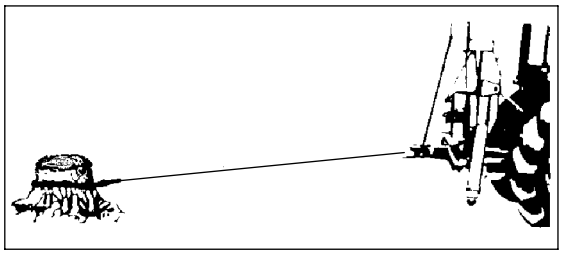


Fig. 14. Winching the tractor out

DROPPING THE LOAD

1. Let down the 3-point hitch.
2. Release the safety brake.

TRANSPORTATION

The cable should be run under lower snatchblock and locked in place for transportation of the winch.

MAINTENANCE

SAFETY

DANGER!

Disengage the P.T.O and turn the tractor off before you service the winch, remove the keys so the tractor cannot be started up accidentally.

LUBRICATION

CAUTION!

Do not oil the drive chain, because the oil will work its way to the clutch!

The cable drum, main sprocket and snatchblock are fitted with self lubricating bearings.

Following points require lubrication:

1. Grease the drum clutch parts after every 500 working hours. Always use good quality lubrication grease.
2. Grease the PTO-shaft regularly and aways before use as shown in figure 15.
3. Grease the drum chain lightly (not with oil) after every 50 working hours with spray type, hardening chain grease. Wipe off the excessive grease.

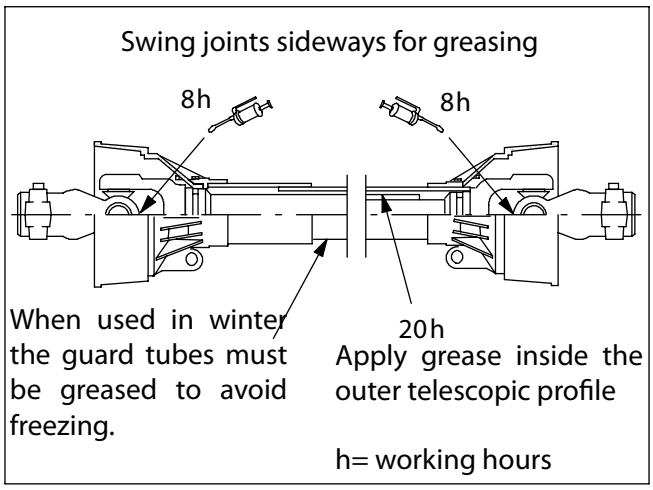


Fig. 15. P.T.O shaft lubrication

CLUTCH ADJUSTMENT

1. Loosen the nuts A and B at both ends of the drum axle. Wrench opening 1 7/16" (36 mm).
2. Adjust the clutch by turning the axle C with 9/16" or 14 mm wrench. The clutch tightens clockwise, loosens counterclockwise. Turn max. 1/4 turn.
3. After adjustment retighten the nuts A and B on the ends of the drum axle.
4. Pull the control rope. The coupling lever should be able to move at least 7-9 cm before the clutch engages. If the clutch engages earlier, loosen the clutch adjustment. If the clutch engages later, tighten the clutch adjustment.

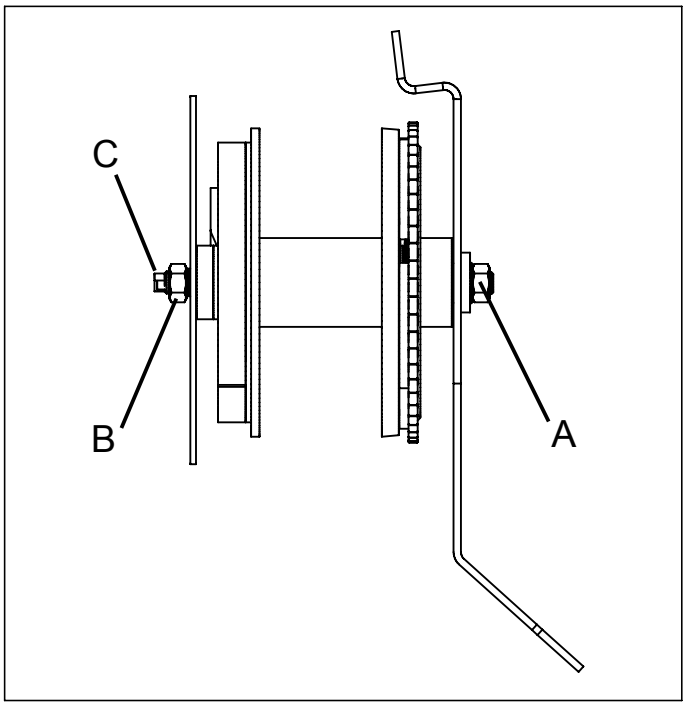


Fig. 16. Clutch adjustment

ADJUSTING THE ROLLER CHAIN TIGHTNESS

Roller chains tightness adjustment is carried out by moving the chain tightener. See fig. 17.

1. Loosen three (width across flats 17 mm) nuts.
2. Adjust the tightness of the chain by tightening or loosening the adjustment screw.
3. Tighten the nuts.
4. Check that the chain tightener runs on the rollers.

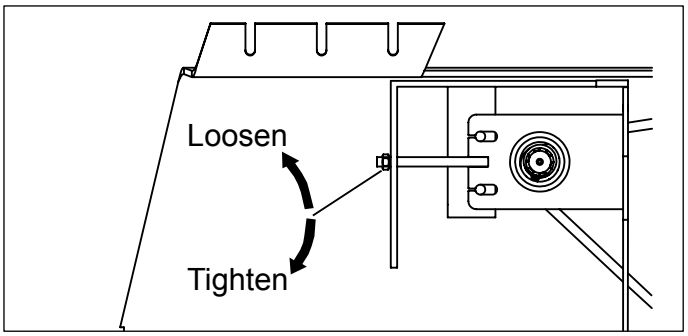
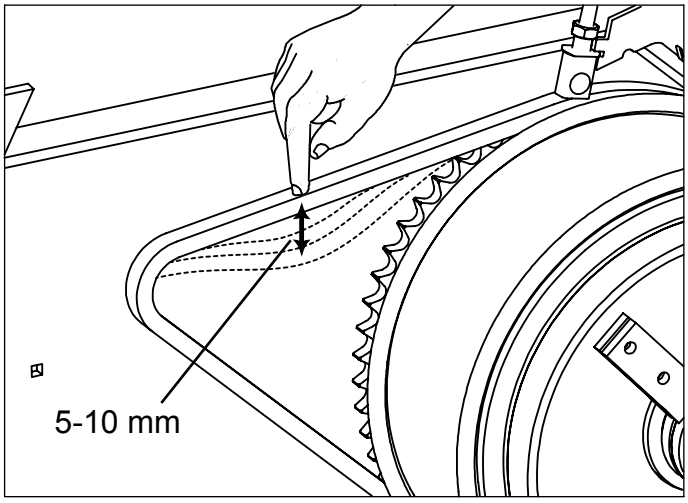


Fig. 17. Tightening the roller chain



NOTE! Do not over tighten the chain.

ADJUSTING THE DRUM BRAKE

Adjust the drum brake so that it slows down the drum slightly while pulling out the rope. This will reduce risk of tangling and backlash.

- To increase the braking effect tighten the adjustment bolt. See fig 18. To decrease the braking effect loosen the adjustment bolt.

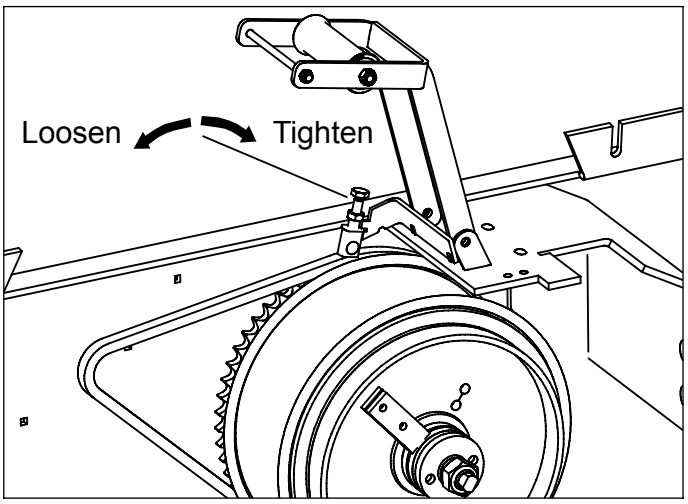
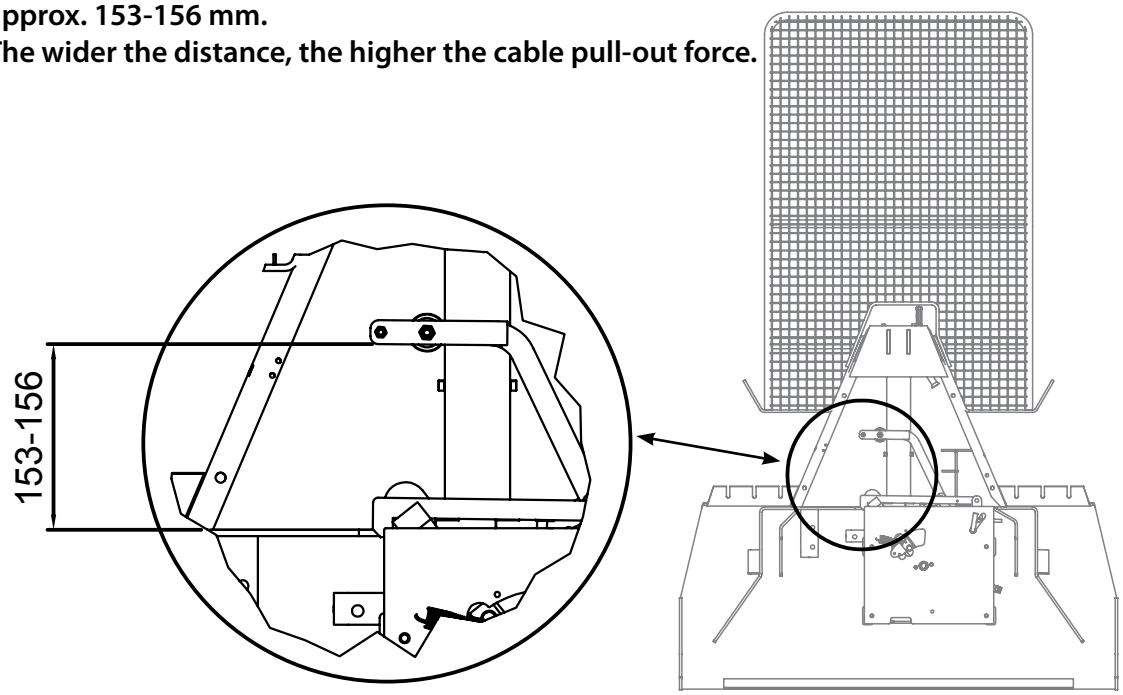


Fig. 18. Drum brake adjustment

CAUTION!

When the drum break friction pad is correctly positioned, the distance between the end of the lever and the frame is approx. 153-156 mm.
The wider the distance, the higher the cable pull-out force.



DISMANTLING THE MACHINE UNIT
see spare part image on page 30
(position numbers in brackets)

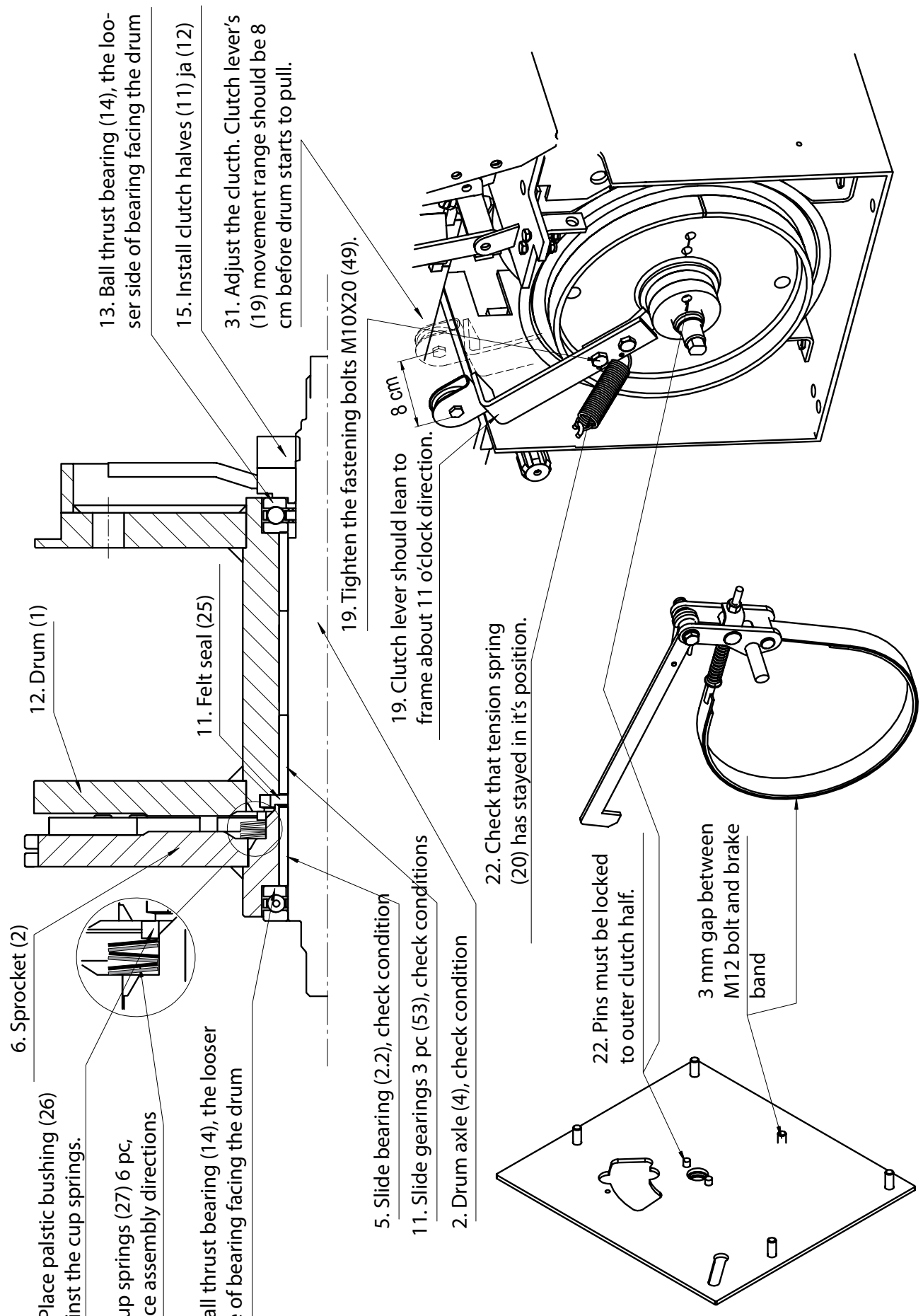
1. Detach the cable and pull it out of the drum.
2. Loosen the chain tightness.
3. Loosen the tightness of the safety brake and put the brake on.
4. Detach the safety brake control lever by loosening the M12 bolt (45).
5. Detach the drum axle M24 locknut (21) from the front plate side.
6. Detach the front plate fastening bolts, 4 pces M16 (41).
7. Remove the front plate (37).
8. Remove the extension spring between the front plate and the coupling lever (5).
9. Detach the coupling lever (7).
10. Detach two M10 bolts from the brake spring mounting iron (28). Caution: tension in brake spring! Use e.g. self-locking pliers during the detachment stage.
11. Remove the safety brake (9) and swaged link (8).
12. Remove the drum extension spring and then detach the drum brake fastening screw M10x150 (6.4).Make sure that the friction pad does not fall.
13. Detach the clutch halves (15, 16). Hold both tightly so that the rolls (24) between the halves do not fall. In order to facilitate assembly of the machine unit, record and store the position of the coupling lever for the future.
14. Remove the pressurized ball bearing on the front plate side (17). In order to facilitate assembly of the machine unit, record and store the direction of the bearing.
15. Pull the drum (2) along the axle. Caution: the drum mass is approximately 65 kg!
16. Remove the plastic intermediate bushing (23).
17. Remove the cup springs, total: 6 (18). In order to facilitate assembly, record and store the direction of the springs.
18. Detach the chain link (14) and remove the chain (13). Record and store the direction of the chain and chain link.
19. Detach the drum cover by removing the six M12 bolts (48).
20. Remove the sprocket (1).
21. Remove the pressurized ball bearing on the dozer blade side (17). In order to facilitate assembly, record and store the direction of the bearing.
22. Detach the M24 lock nut (21) from the drum axle on the dozer blade side and remove the axle (4).

23. Detach the axle guard (4, page 26) by removing four M10 bolts.
24. Remove the chain tensioner (3) by removing three M12 bolt (48) and the tightening nut (31).

ASSEMBLING THE MACHINE UNIT
see spare part image on page 30
(position numbers in brackets)

1. Fix the chain tensioner (3) into place. Do not screw the tightener bolts yet.
2. Check the condition of the drum axle (4) and install it. There must not be any deep dents or other faults affecting the performance of the winch in the axle. Check the straightness of the axle and the condition of the threads as well. Renew the axle if necessary.
3. Connect ring D65 (19) and washer M24 (20) as well as axle lock nut M24 (21) on the dozer blade side. Do not tighten the axle yet.
4. Install the pressurized ball bearing on the dozer blade side (17). ATTENTION! The wider side of the bearing should face the drum!
5. Check the condition of the Glissa glide bearings (1.4, 1.5) and switch them to new ones if necessary.
6. Install the sprocket (1).
7. Connect the chain (13) and the chain link (14), but do not tighten the chain yet.
8. Install the drum cover (11) and its six fastening screws M12 (48). Do not tighten the screws yet.
9. Install the 6 cup springs (18). The springs should be arranged so that the convex side of the first pair faces from the dozer blade towards the drum, the second pair's convex side faces the dozer blade and the third pair's convex side faces the drum.
10. Install the plastic intermediate bushing against the cup spring.
11. Check the drum's filter ring (22, total: 1) and the condition of the Glissa glide bearings (2.2, total: 3) and replace with new ones if necessary.
12. Install the drum (2). Caution: the drum mass is approximately 65 kg! ATTENTION! Clean the drum's clutch and brake surface with a grease and dirt remover that is suitable for the purpose!
13. Install the pressurized ball bearing on the front plate side (17). ATTENTION! The wider side of the bearing should face the drum!
14. Install the clutch halves (15, 16). Hold both halves tightly while tightening them to the shaft. The coupling lever should be at the 11 o'clock position when tightened into its station.
15. Check the condition of the safety brake collar (9) and the brake spring (35) and replace them with new ones if necessary. A stretched spring and worn brake collar weaken braking efficiency significantly!
16. Install the safety brake and lever. ATTENTION! Clean the drum's clutch and brake surface with a grease and dirt remover that is suitable for the purpose!
17. Install the brake spring mounting iron (28), washers (50) and fastening screws (30). Caution: tension in brake spring! Use e.g. self-locking pliers as an aid during the installation stage to lock the mounting iron in place.
18. Install the coupling lever (19) and tighten its tightening screws, total: 2, M12. The coupling lever should rest against the winch base at about the 11 o'clock position.
19. Install the extension spring (5) between the coupling lever and the front plate.
20. Install the front plate (37).
21. Check that the studs in the front plate are in the holes of the top clutch half and that the top half stays in place when you move the coupling lever. Check that the extension spring (5) has also stayed in place.
22. Install the front plate washers and fastening bolts (41, 42, total: 4 M16) and tighten them.
23. Install the M24 washer (20) facing the drum axle front plate and the M24 attachment nut (21) and tighten the axle slightly. However, do not adjust the clutch yet.
24. Install the safety brake latch (10) and torsion spring and tighten attachment bolt (M12).
25. Install the drum brake (6) and its attachment bolt M10x180 (6.4) as well as the locking nut M10 (6.5) and tighten it. Make sure the friction pad does not fall. Do not tighten the drum brake too tightly: allow it to move freely.
26. Adjust the drum brake friction pad (5.10) so that it functions effectively. However, take the cable route into account while adjusting. The drum brake must be able to move in accordance with the cable movements when the drum is both full and empty.
27. Raise the drum brake away from the drum surface.
28. Make sure the safety brake is disengaged.

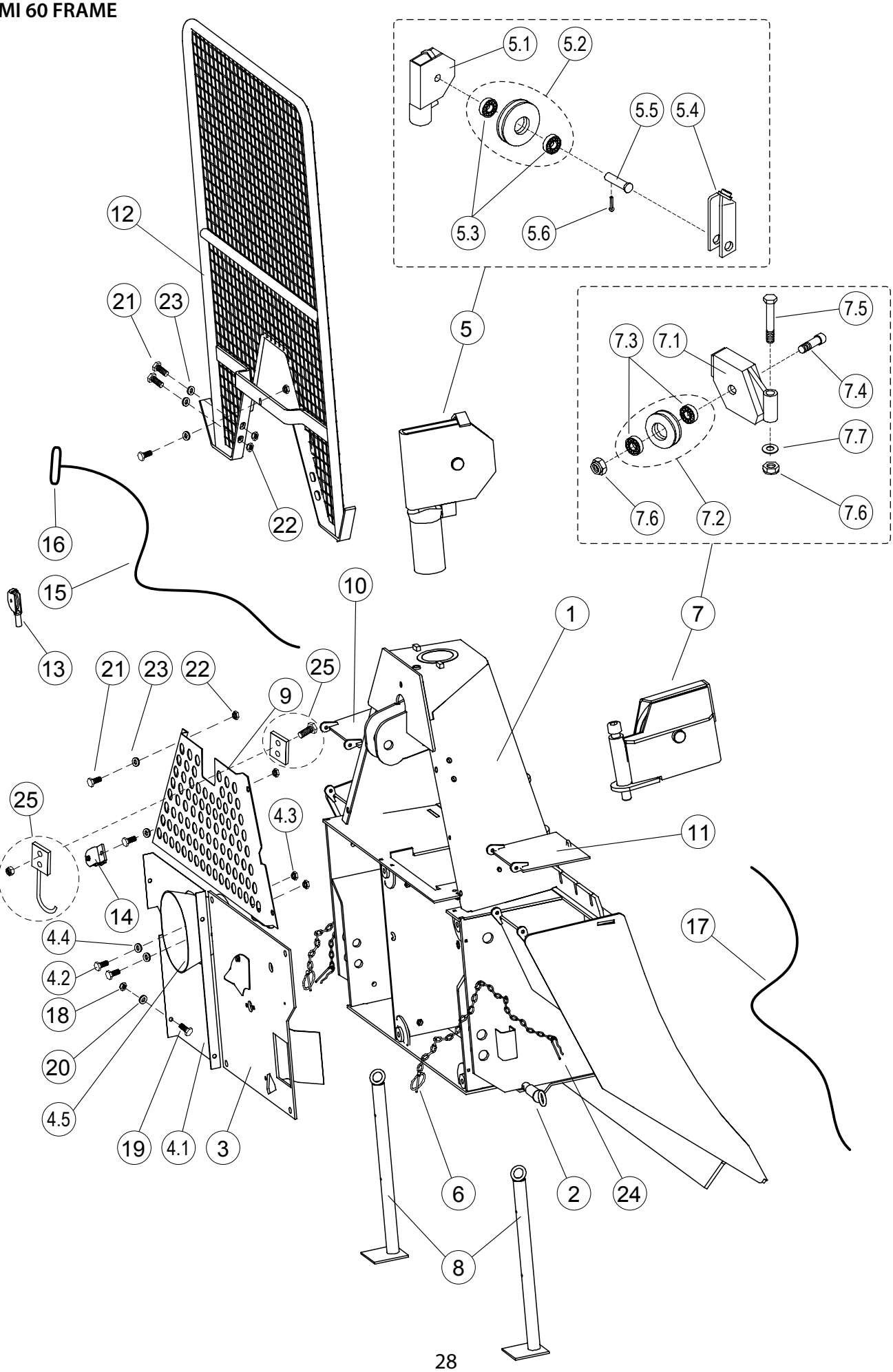
29. Adjust the safety brake. The brake should trail slightly along the surface of the drum, but the drum must be able to spineasily. The safety brake must also keep the drum in place when the safety brake is engaged. Use as much time for adjustment as required to obtain a good result.
30. Adjust the clutch. The free movement of the coupling lever (7) should be approximately 8 cm before the clutch begins to engage.
31. Tighten the drum axle locking nuts (21, total: 2 M24).
32. Install the drum brake extension spring (5).
33. Install the cable to the drum and tighten the mount shackle securely. Check the condition of the shackle (2.3) and renew it if necessary. ATTENTION! Make sure the shackle fastening nuts do not come in touch with the coupling lever when the drum is spinning!
34. Connect e.g. a heavy log to the other end of the cable.
35. Tighten the chain to the standard values and install the articulated axle guard (4, page 26). Install their fastening screws and washers, total: 4 M10 (19, 20) and tighten the screws.
36. Install the articulated axle guard (4) and its fastening screws, total: 4 M10x25 (43) and tighten them. To prevent damage to the guard, do not tighten the screws too tightly.
37. Tighten the drum cover screws (48) and make sure the drum has enough space to move inside the cover without problems. Check the tightness of the other fastening screws as well.
38. Winch the cable as loaded to the drum.


6. Sprocket (2)
10. Place palstic bushing (26) against the cup springs.
9. Cup springs (27) 6 pc, notice assembly directions
4. Ball thrust bearing (14), the looser side of bearing facing the drum
12. Drum (1)
11. Felt seal (25)
13. Ball thrust bearing (14), the looser side of bearing facing the drum
15. Install clutch halves (11) ja (12)
31. Adjust the clucth. Clutch lever's (19) movement range should be 8 cm before drum starts to pull.
19. Tighten the fastening bolts M10X20 (49).
8 cm
19. Clutch lever should lean to frame about 11 o'clock direction.
5. Slide bearing (2.2), check condition
11. Slide gearings 3 pc (53), check conditions
2. Drum axle (4), check condition
22. Check that tension spring (20) has stayed in it's position.
22. Pins must be locked to outer clutch half.
3 mm gap between M12 bolt and brake band

TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	REMEDY
Hard to pull the cable out	Drum brake is too tight.	Loosen the drum brake. See instructionsfrom item ”Adjusting the drum brake”.
	The clutch is too tight	Loosen the clutch
Cable gets tangled on the drum.	Cable too loose on the drum. The cable is pressed between loose loops.	Disengage the brake and drive the cable out from the drum by means of the tractor. Reel the cable tightly back in with the help of the load.
Cable develops kinks.	Cable brake too loose	Tighten the drum brake.Tighten cable on the drum by pulling out the cable and by winching with a heavy load.
Roller chain comes off.	Roller chain too loose, some part is broken or the aligning is incorrect.	Check the aligment of the chain. Check possible damages. Adjust the roller chain, change if necessary. See chapter ”Adjusting the roller chain”.
Rattling sound	Roller chain too tight, some part is broken or the aligning is incorrect.	Check the aligment of the chain. Check possible damages. Adjust the roller chain, change if necessary. See chapter ”Adjusting the roller chain”.
Insufficient pull on the cable	Normal wear of the clutch. Minimum thickness of the clutch plates is 7 mm.	See chapter ”Clutch adjustment”
	Oil or grease in the clutch	Disassemble and clean the parts.
	Clutch too loosely adjusted	Adjustment of the clutch. See chapter ”Clutch adjustment”
Tractor slides backwards when winching	Parking brakes are not on. Dozer blade does not anchor the unit firmly to the ground.	Lock on the parking brakes. Lower the winch all way to the ground.

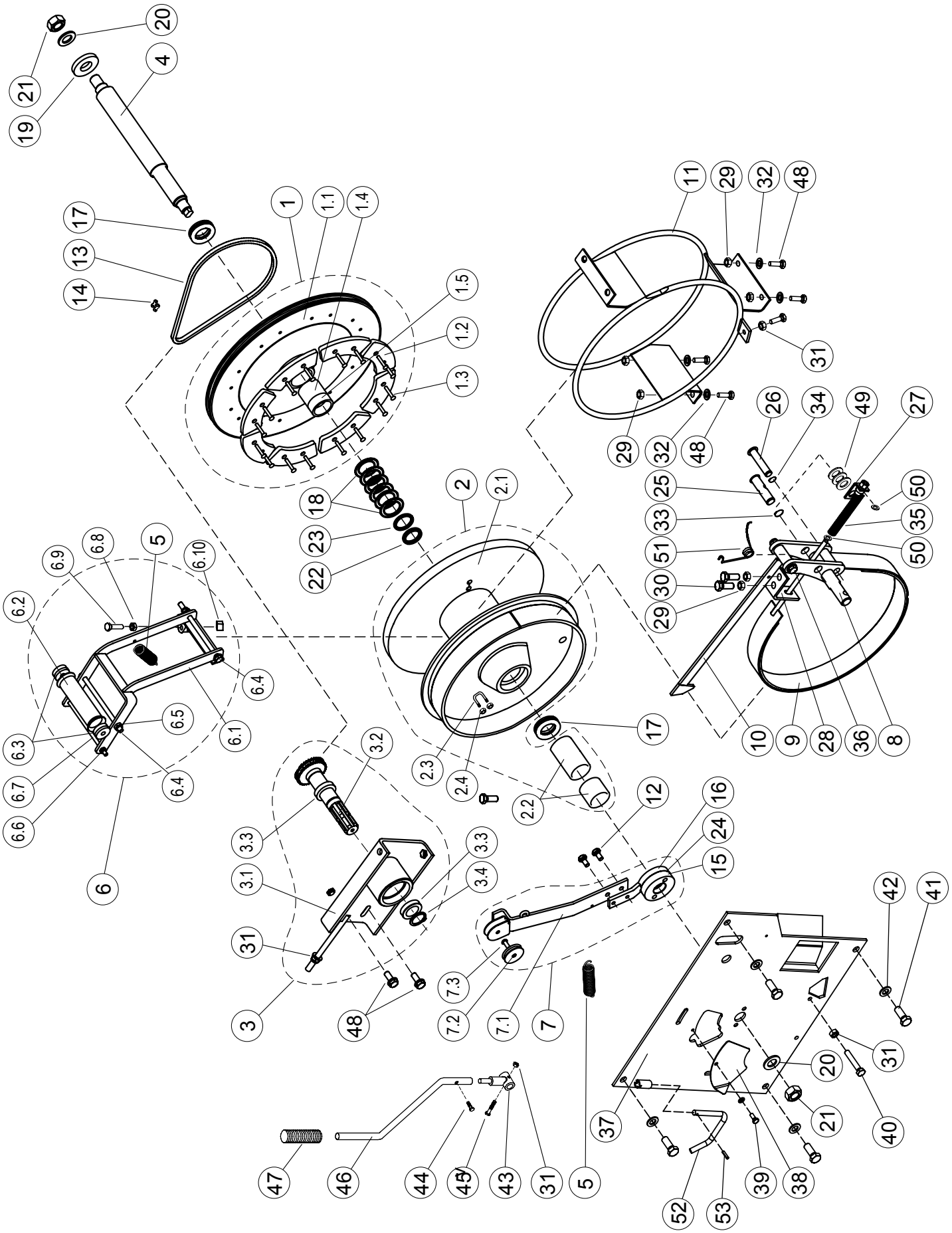
FARMI 60 FRAME



FARMI 60 FRAME

Part	Order no	Description	Remarks	Qty
1	23101300	Frame		1
2	92820190	Pin		2
3	43101520	Front plate		1
4	43101490	Cover plate	complete	1
4.1	43101480	Cover plate		1
4.2	52060126	Screw	M8X20 DIN933 88ZN	2
4.3	52117082	Lock nut	M8 DIN985 8ZN	2
4.4	52200037	Washer	M8 DIN126 58ZN	2
4.5	43511780	Cover of the universal shaft		1
5	33120015	Upper diverting pulley	complete	1
5.1	33120023	Diverting pulley frame		1
5.2	43120039	Diverting pulley	incl. part 5.3	1
5.3	54511241	Slotted sealed ball bearing		2
5.4	43120088	Finger guard		1
5.5	52856283	Pin		1
5.6	52813235	Split pin	6X50 DIN94 ZN	1
6	03182600	Chain + ring cotter		2
7	03035200	Lower diverting pulley	complete	1
7.1	23130206	Diverting pulley frame		1
7.2	43120039	Diverting pulley	incl. part 7.3	1
7.3	54511241	Slotted sealed ball bearing		2
7.4	43130210	Axle screw		1
7.5	52062440	Screw	M24X240 DIN931 10.9ZN	1
7.6	52117249	Lock nut	M24 DIN985 8ZN	2
7.7	52200102	Washer	M24 DIN126 58ZN	1
8	43036540	Support leg		2
9	43101540	Lower protective screen		1
10	43101590	Shutter	left	1
11	43101580	Shutter	right	1
12	33101650	Upper protective screen		1
13	42721050	Snatch block		1
14	43036880	Snatch block		1
15	02721611	Clutch rope		1
16	43551970	Clutch rope handle		1
17	02721629	Latch rope		1
18	52117420	Nut	M10, Kalei	4
19	52060225	Screw	M10X25 DIN933 88ZN	4
20	52200045	Washer	M10 DIN125 58ZN	4
21	52062023	Screw	M12X30 DIN933 88ZN	9
22	52117406	Nut	M12, Kalei	9
23	52200052	Washer	M12 DIN125 58ZN	9
24	03182650	Chain + cotter		2
25	43130368	Hook for universal shaft	complete	1

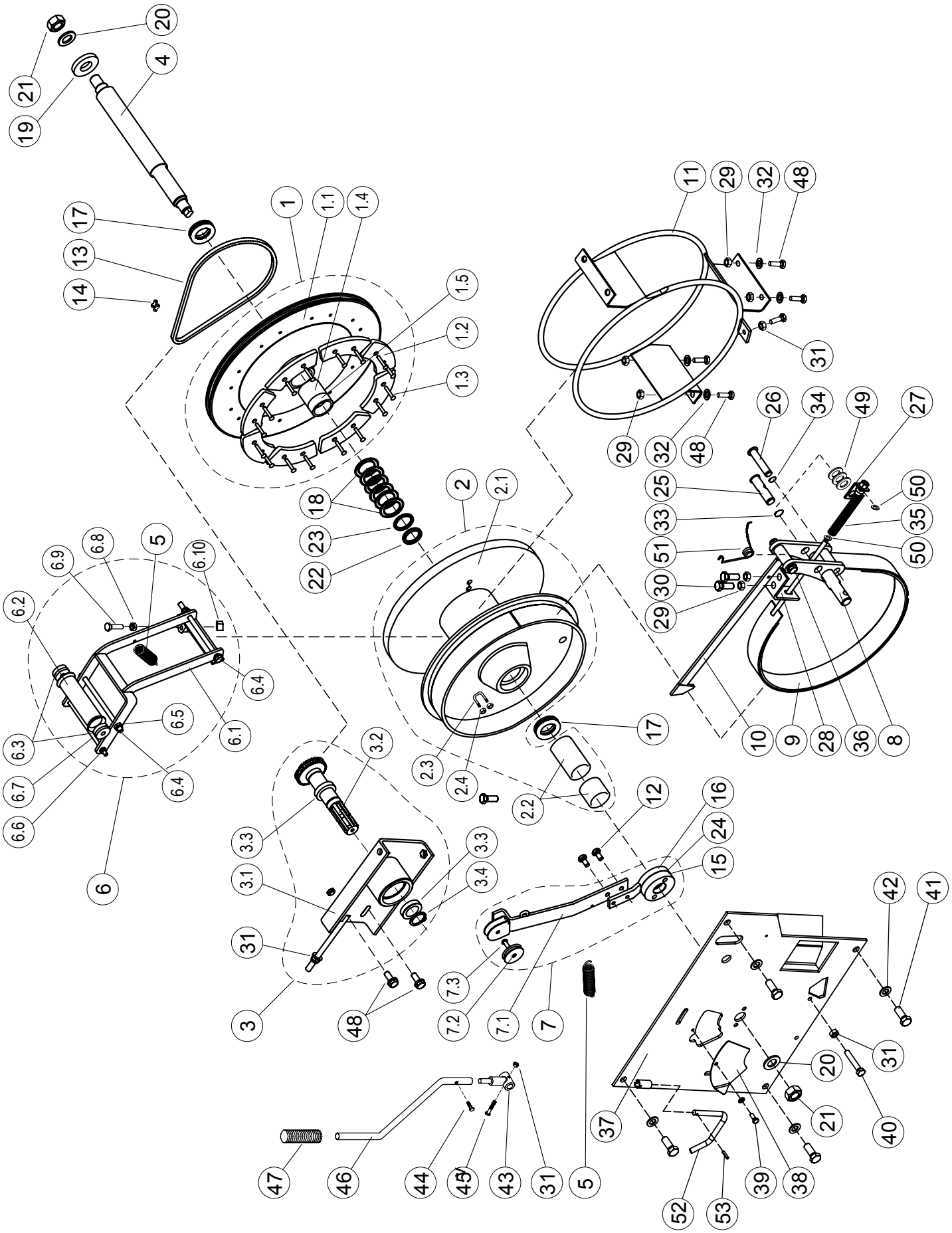
03101000 MACHINERY



03101000 MACHINERY

Part	Order no	Description	Remarks	Qty
1	43100740	Sprocket	complete	1
1.1	33100730	Sprocket		1
1.2	42722744	Friction plate		8
1.3	52830049	Rivet		16
1.4	54562053	Slide bearing		1
1.5	42271130	Bearing sleeve half		1
2	43100800	Drum	complete	1
2.1	33100790	Drum		1
2.2	54562053	Slide bearing		3
2.3	54815160	Shackle		1
2.4	52117108	Lock nut	M10 DIN985 8ZN	2
3	43101120	Chain tightener and splined shaft	complete	1
3.1	33101080	Chain tightener		1
3.2	43101960	Splined shaft		1
3.3	54511340	Slotted sealed ball bearing		2
3.4	52230067	Circlip	35X2,5 DIN471	1
4	43101470	Axle		1
5	94612082	Tension spring		2
6	43100860	Drum brake	complete	1
6.1	33100850	Drum brake		1
6.2	43100690	Reel		1
6.3	43190860	Bushing		2
6.4	52062880	Screw	M10X180 DIN931 88ZN	2
6.5	52117108	Lock nut	M10 DIN985 8ZN	1
6.6	52117082	Lock nut	M8 DIN985 8ZN	1
6.7	52070301	Screw	M8x180 DIN931 88ZN	1
6.8	52110046	Nut	M10 DIN934 8ZN	1
6.9	52060258	Screw	M10X40 DIN933 88ZN	1
6.10	42723197	Friction piece		1
7	43101750	Clutch lever	complete	1
7.1	43100880	Clutch lever extension		1
7.2	42381012	Reel		1
7.3	52831062	Rivet		1
8	43100920	Swing lever		1
9	43100970	Brake band		1
10	43101020	Safety brake latch		1
11	33101460	Drum cover		1
12	52060514	Screw	M10X20 DIN933 88ZN	2
13	54820850	Roller chain		1
14	54820568	Chain link		1
15	32722779	Clutch half		1
16	42723114	Clutch half		1
17	54542063	Ball thrust bearing		2
18	54642194	Cup spring		6
19	43000678	Ring		1
20	52200102	Washer	M24 DIN126 58ZN	2
21	52110103	Nut	M24 DIN934 8ZN	2

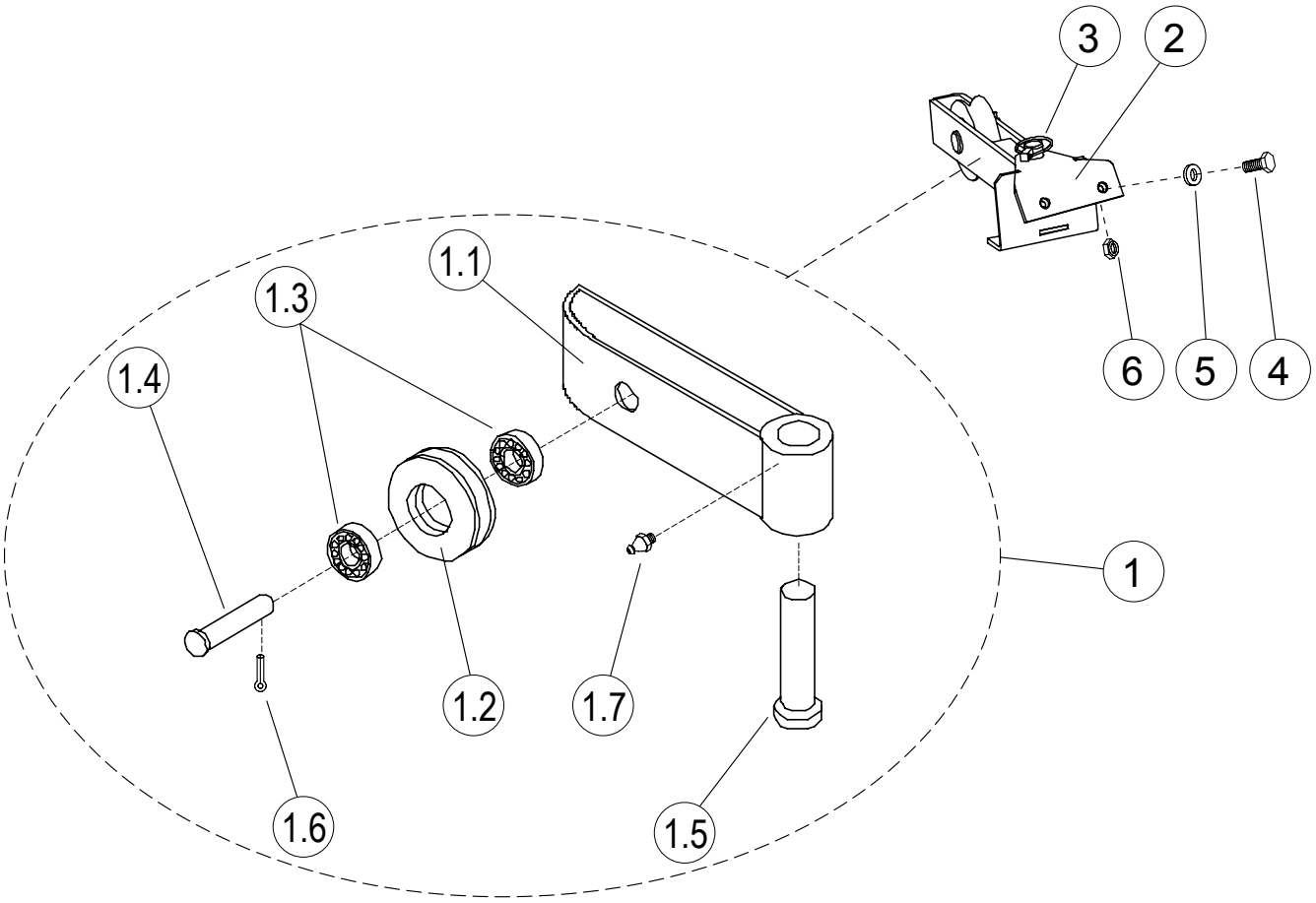
03101000 MACHINERY



03101000 MACHINERY

Part	Order no	Description	Remarks	Qty
22	52390820	Felt seal		1
23	43101550	Bushing		1
24	40660235	Reel		3
25	43101610	Brake band pin	upper	1
26	43101620	Brake band pin	lower	1
27	43000942	Brake regulator		1
28	43101910	Spring bracket		1
29	52117420	Nut	M10, Kalei	12
30	52060225	Screw	M10X25 DIN933 88ZN	2
31	52110053	Nut	M12 DIN934 8ZN	2
32	52200052	Washer	M12 DIN125 58ZN	8
33	52230034	Circlip	20X1,2 DIN471	1
34	52230026	Circlip	16X1,0 DIN471	1
35	94602075	Compression spring		1
36	52070740	Screw	M12x90 DIN933 88	1
37	43101520	Front plate		1
38	43037100	Maintenance door		1
39	52060126	Screw	M8X20 DIN933 88ZN	1
40	52063609	Screw	M12X70 DIN933 88ZN	1
41	52062114	Screw	M16X40 DIN933 88ZN	4
42	52200078	Washer	M16 DIN125 58ZN	4
43	43110394	Bushing		1
44	52060514	Screw	M10X20 DIN933 88ZN	1
45	52062627	Screw	M12X50 DIN931 88ZN	1
46	43001248	Brake lever		1
47	54924014	Handle	pvc	1
48	52062023	Screw	M12X30 DIN933 88ZN	9
49	52200086	Washer	M20 DIN126 58ZN	3
50	52200045	Washer	M10 DIN125 58ZN	2
51	43482730	Torsion spring		1
52	43100640	Hook		1
53	52840295	Cotter pin	5X24 DIN1481	1

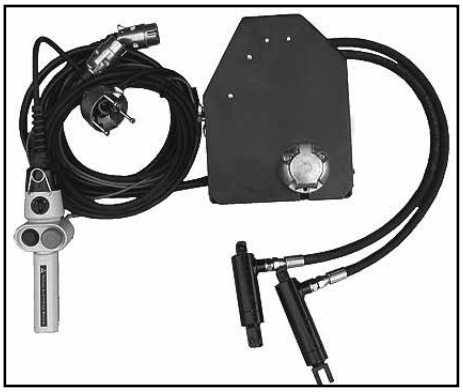
FARMI 60 SPOOLING DEVICE, ACCESSORY



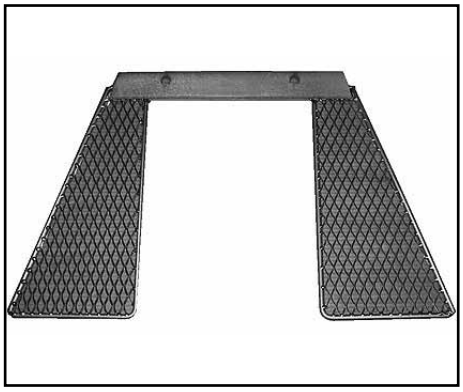
Part	Order no	Description	Remarks	Qty
1	33031196	Spooling device	complete	1
1.1	43031204	Frame		1
1.2	43030790	Diverting pulley		1
1.3	54511159	Slotted sealed ball bearing		2
1.4	92823269	Pin		1
1.5	92820455	Pin	25X100	1
1.6	52813219	Split pin	6X40 DIN94 ZN	2
1.7	52401015	Grease nipple	AR1/8	1
2	43036600	Fastening		1
3	52842168	Ring splint		1
4	52062023	Screw	M12X30 DIN933 88ZN	2
5	52200052	Washer	M12 DIN125 58ZN	2
6	52117406	Nut	M12, Kalei	2

ACCESSORIES

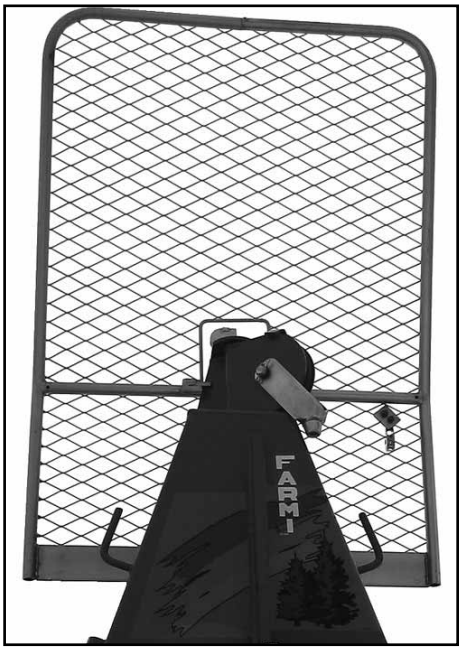
LL



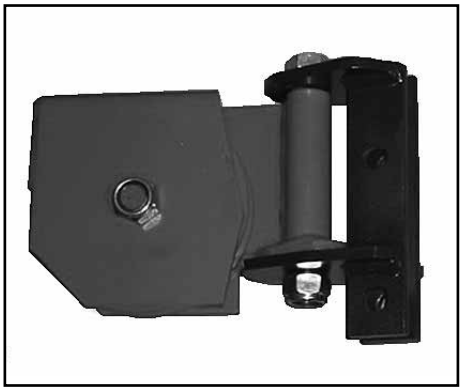
HOF-4



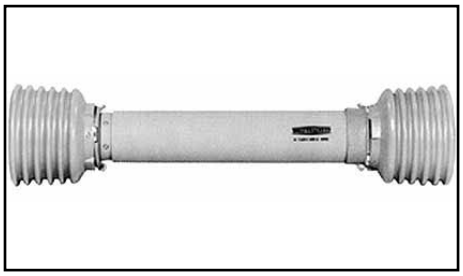
ASV



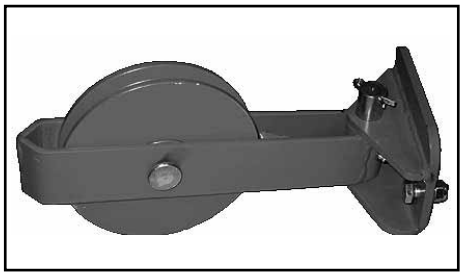
SV



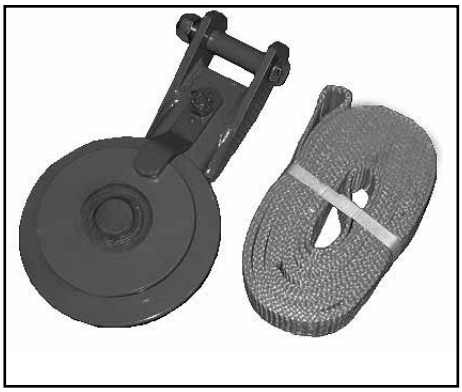
ATP



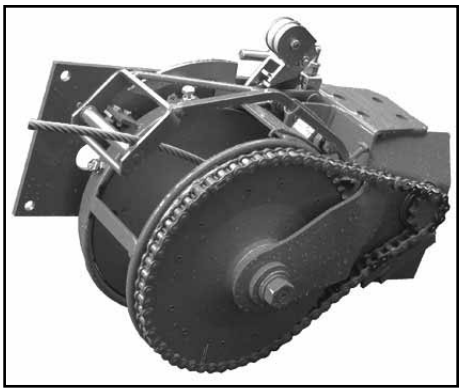
W2200



PLL



TP14IH



JK

LK

ACCESSORIES

Part	Order no	Description
JK 351	03190469	Machinery 3,5 t
JK 501	03010501	Machinery 5 t
JK 501T	03010519	Machinery 5 t, with brake
JK 601	03100006	Machinery 6 t
JK601T	03110005	Machinery 6 t, with brake
ATP 500	33032012	Lower pulley D = 105 mm
ATP 500T	33031378	Lower pulley D = 153 mm
ATP 501	03032400	Lower pulley with frame, D = 105 mm
ATP 501T	03183630	Lower pulley with frame, D = 140 mm
ATP 601T	03035200	Lower pulley with frame, D = 180 mm
ATP650T	03402000	Lower pulley with frame, D = 180 mm
W 2100	54807706	PTO-shaft, 14 kW
W 2200	54807714	PTO-shaft, 24 kW
W 2300	54821012	PTO-shaft, 34 kW
W 2400	54823060	PTO-shaft, 47 kW
Belt TP14	54713037	Belt for TP14
TP14 IH	30118120	Self releasing pulley, max. 3,5 t, without belt
LK2-TK10	54817077	Notched hook
JK 208	54827019	Skidding chain L = 2,0 m
JK 248	54827043	Skidding chain L = 2,4 m
LL 2	54813159	Choker (cable 8-12 mm)
LL 4	54813167	Choker (cable 14 mm)
VAIJ D8	54824677	Cable, D = 8 mm, F = 44 kNm
VAIJ D10	54824032	Cable, D = 10 mm, F = 63 kNm
VAIJ D12	54824040	Cable, D = 12 mm, F = 90,7 kNm
VAIJ D14	54824057	Cable, D = 14 mm, F = 123,5 kNm
SV 300T	43181577	Protective screen
SV 600T	33130303	Protective screen
PLL 500	33031196	Cable winder (JL 501) D = 90 mm
PLL 600	43120542	Cable winder (JL 601/650) D = 90 mm
ASV 400	43020502	Lower protective screen
HOF-4	03151930	Hydraulic control, 2 cylinders
HOF-4G	03151940	Hydraulic control, 2 cylinders
HOF 501	03151280	Mounting kit
HOF 601T/650T	03151290	Mounting kit
HOF ALP 55-85	03151920	Mounting kit

WARRANTY

Farmi Forest Oy grants a 12-month warranty on all of its products, covering material and manufacturing faults. The warranty comes into effect on the product's delivery date.

The manufacturer is not liable for damages caused by:

- misuse of the product
- alterations or repairs made without the manufacturer's permission
- insufficient maintenance
- non-original parts

The warranty does not cover wearing parts.

Send faulty parts, carriage paid, to the manufacturer for inspection. Repairs will be conducted by Farmi Forest Oy or an authorized expert. The warranty is valid only if the bottom part of this page is filled in and returned to the manufacturer within 30 days of receipt of the product.
By returning the warranty certificate, you confirm that you have read and understood the instruction manual that came with the product.

Farmi Forest Corporation
Ahmolantie 6
FIN-74510 IISALMI
FINLAND

PRODUCT REGISTRATION FORM

Date of delivery:_____/_____ 20_____

Dealer:

Dealer's address:

Dealer's tel:

Product and type:

Serial number:

Return to the manufacturer

Date of delivery:_____/_____ 20_____

Dealer:

Dealer's address:

Dealer's tel:

Customer:

Customer's address:

Customer's tel:

E-mail:

Product and type:

Serial number:

Farmi Forest Corporation
Ahmolantie 6
FIN-74510 Iisalmi, Finland
Puh. +358 (0)17 83 241
Fax. +358 (0)17 8324 372
www.farmiforest.fi