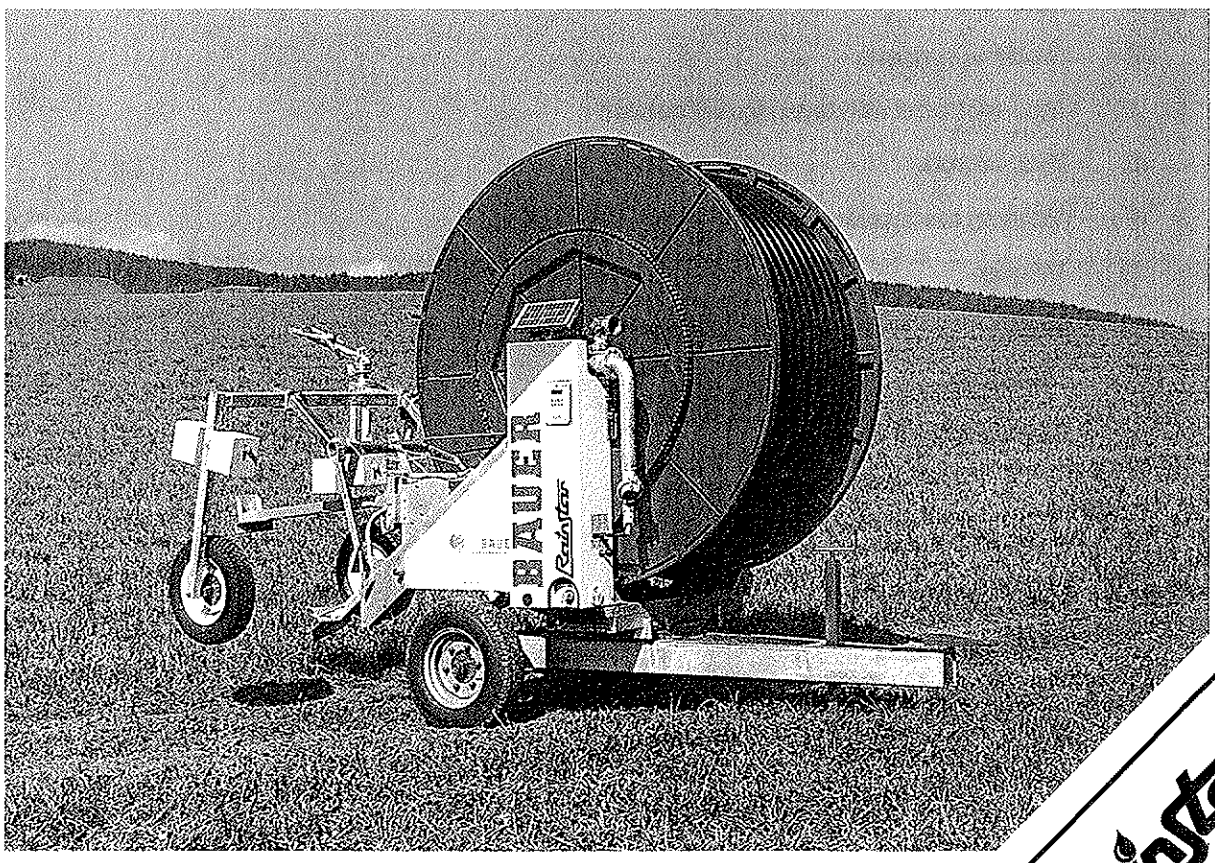
BAUER

Operating Manual

RAINSTAR Series TX

Model 65 TX
75 TX
85 TX^{L}
90 TX^{L}



Rainstar
Series TX
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THANK YOU FOR BUYING A BAUER RAINSTAR.

The staff of BAUER has used its best efforts to offer you an irrigation machine featuring up-to-date technology and top level quality.

This manual covers everything you need to know for the **RAINSTAR'S** operation and maintenance.

All information contained in this operating manual is based on the latest product information available at the time of printing.

BAUER reserves the right to changes without notice without assuming any liability!

BAUER RAINSTAR is designed to perform safely and reliably, provided it is handled and operated in accordance with the present operating instructions.

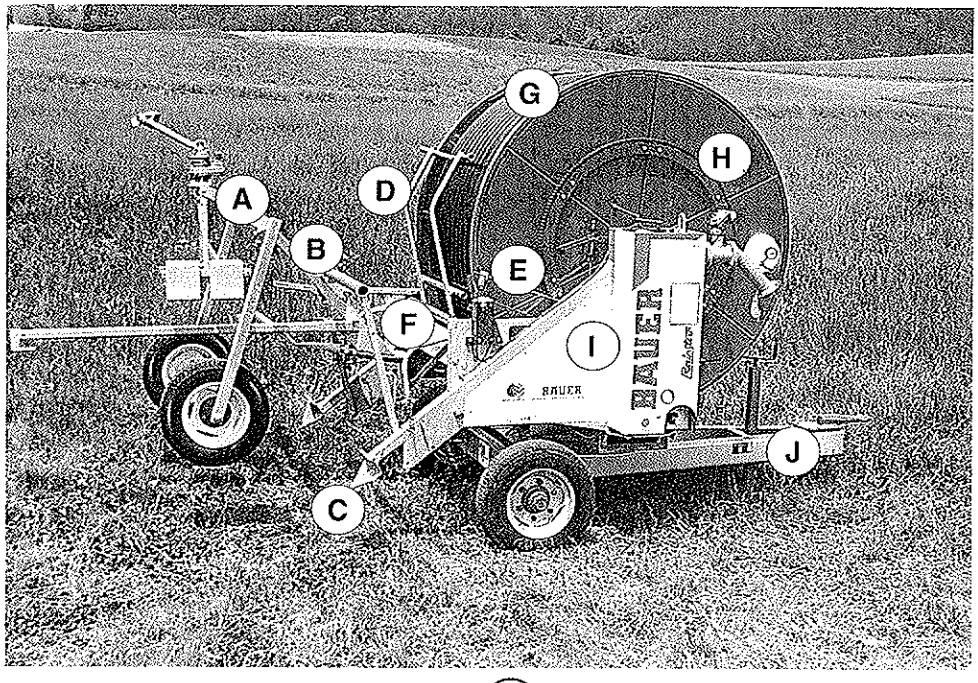
Please read these instructions completely before you put the **RAINSTAR** into operation!

Non-observance of these instructions may cause injury to persons or damage the equipment.

We wish you a lot of success with your **BAUER RAINSTAR.**

(I)
- A Sled/cart
- B Automatic lift
- C Machine supports
- D Shut-off frame with layering mechanism
- E Shut-off rods
- F Winding mechanism
- G PE-pipe
- H Reel
- I Turntable
- J Undercarriage and jack

(II)
- K 2-stage belt drive
- L Gear shift lever
- M Full-flow turbine
- N Speed control
- O Change-speed gear
- P Band brake



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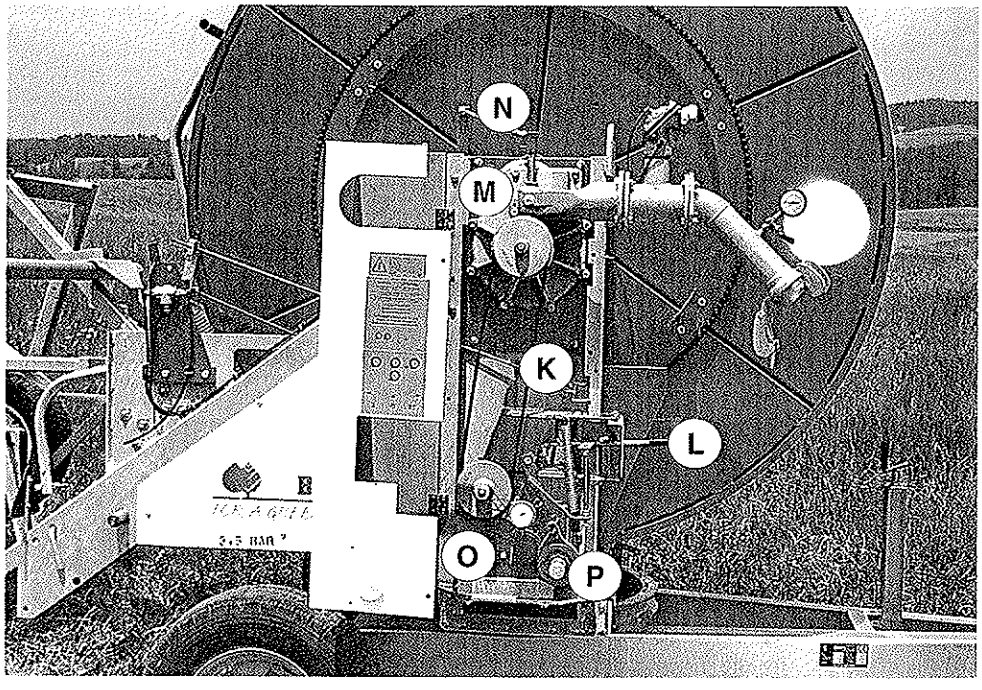

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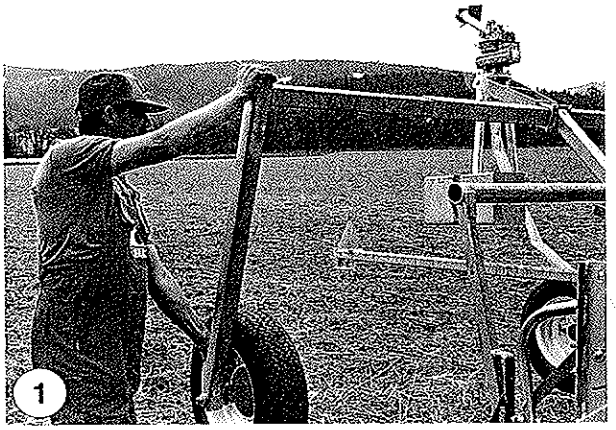
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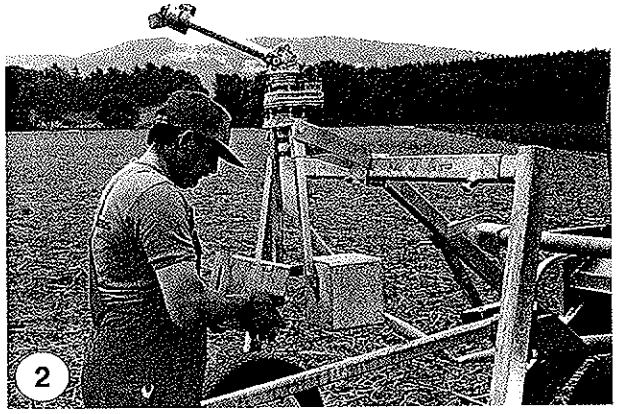
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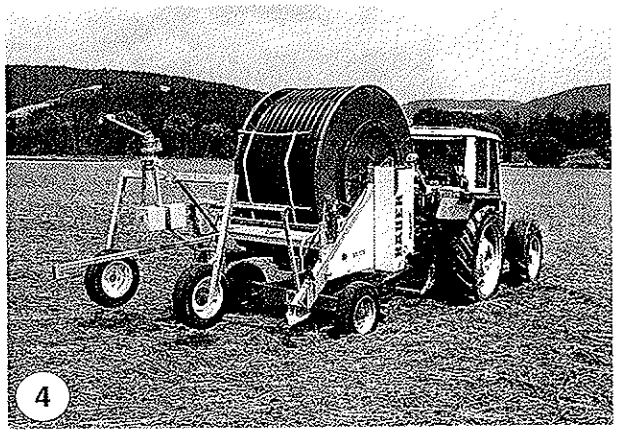
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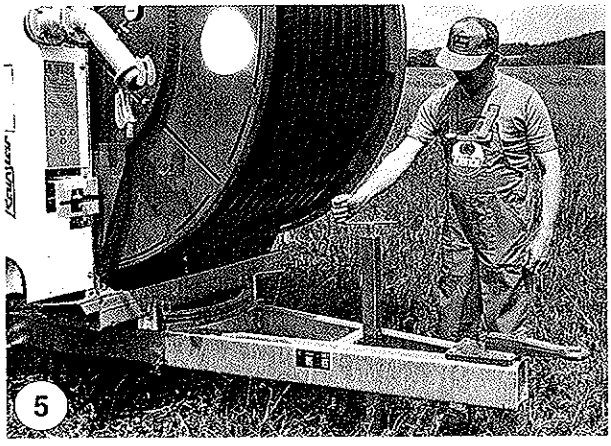
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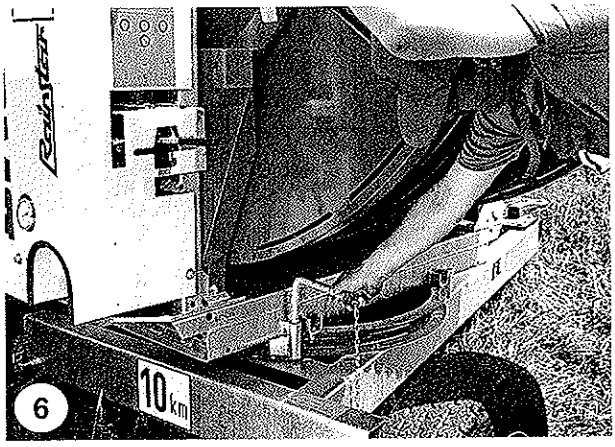

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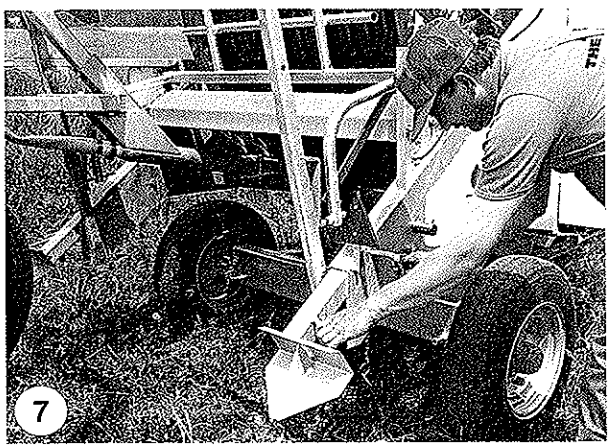
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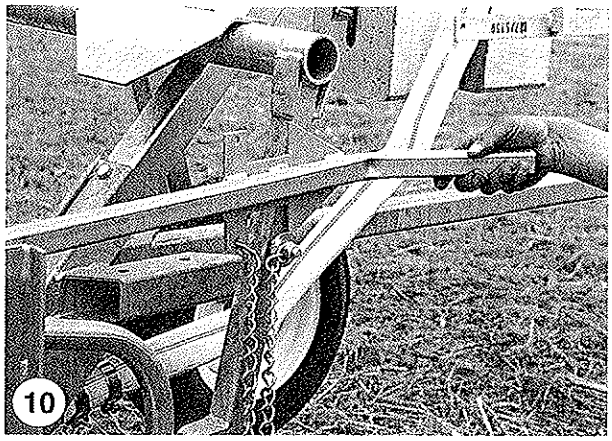
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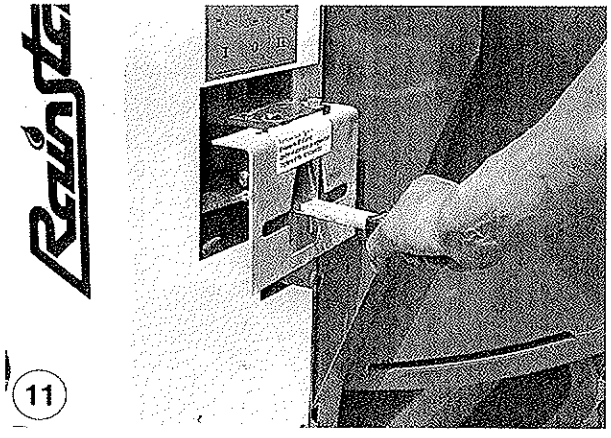

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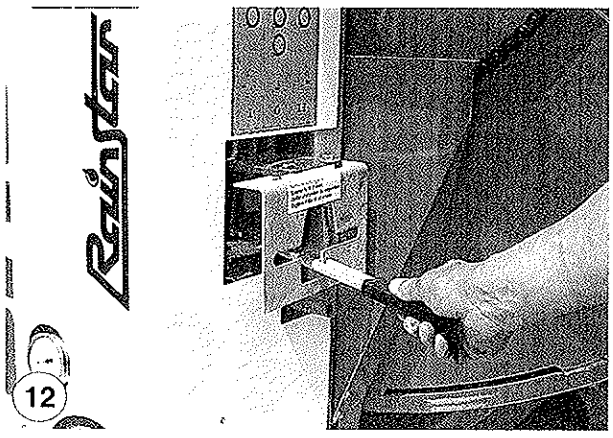

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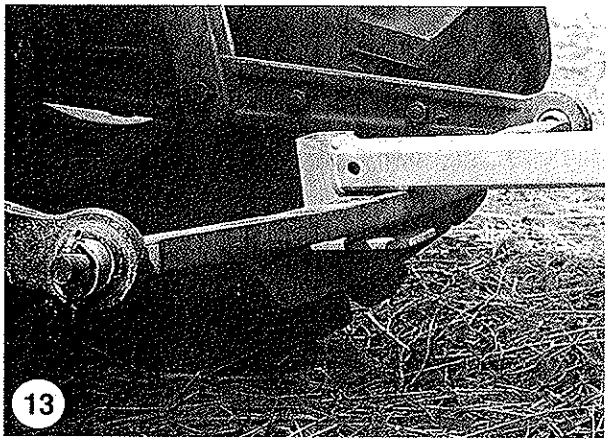
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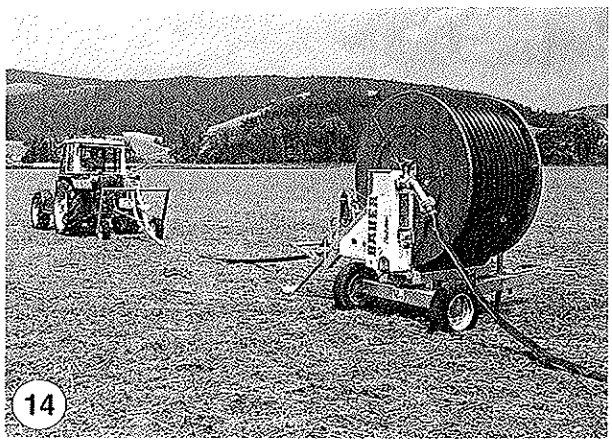

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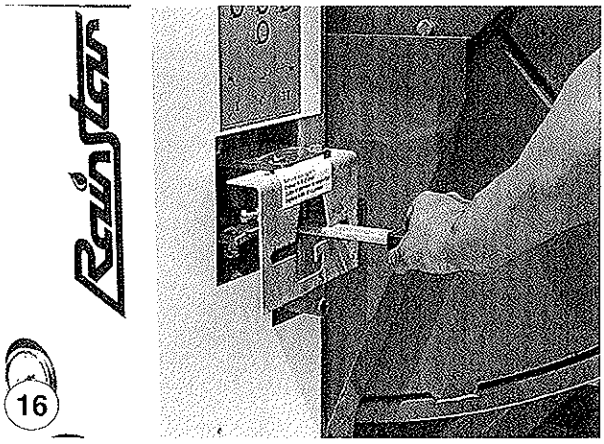

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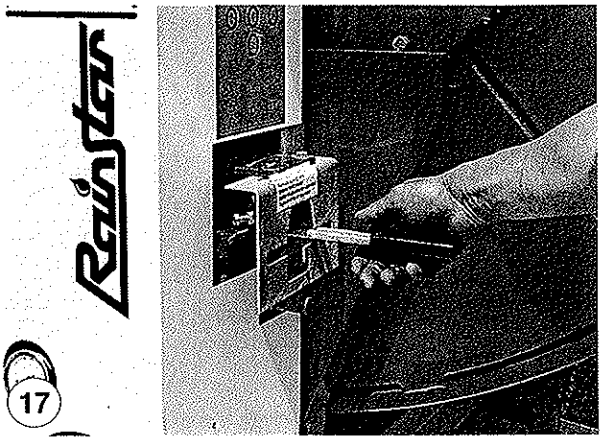
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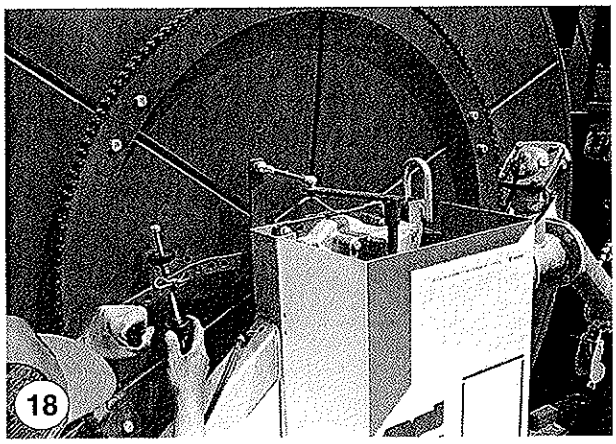
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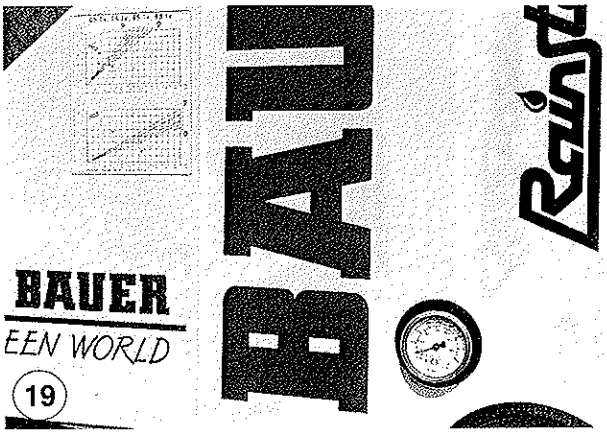
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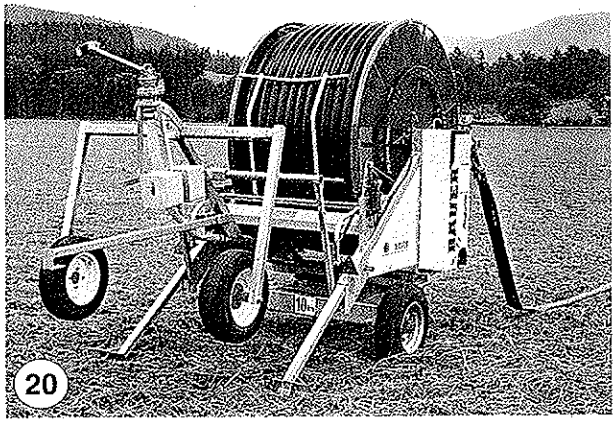
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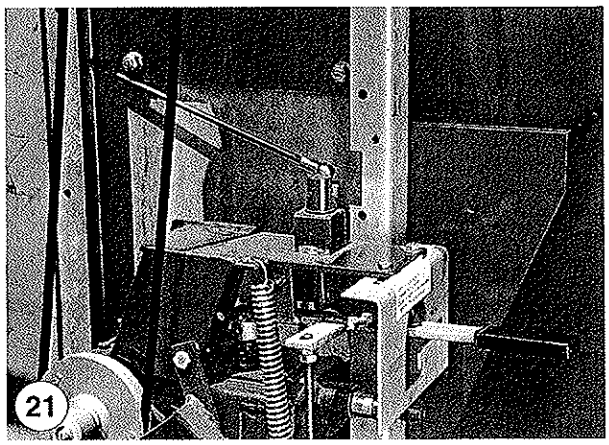
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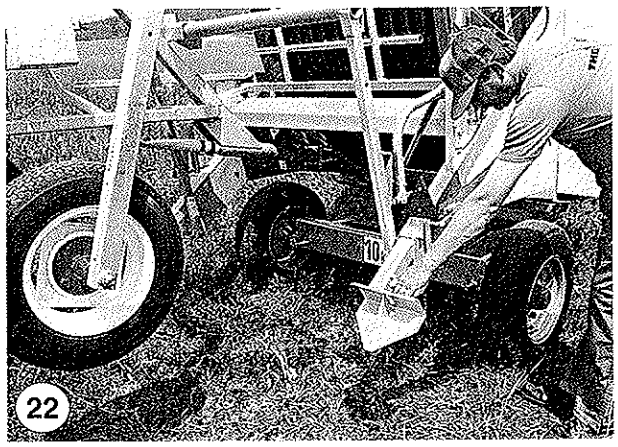
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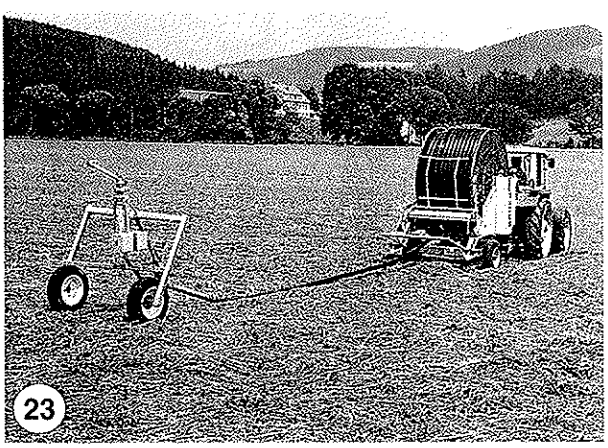
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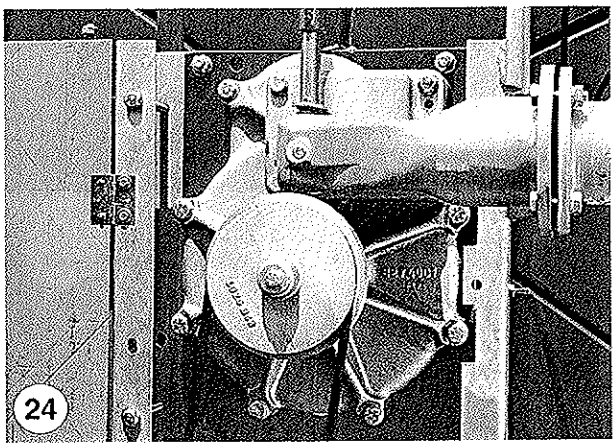
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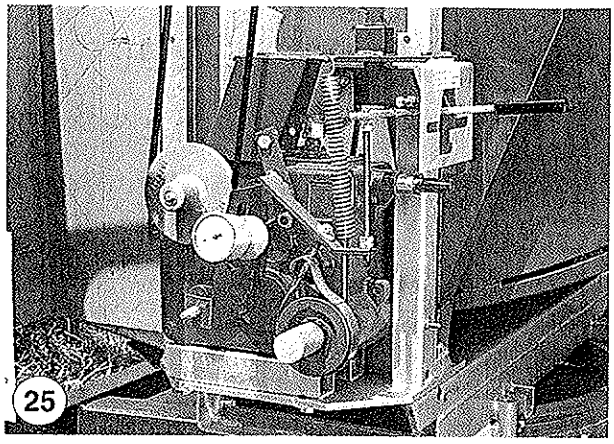
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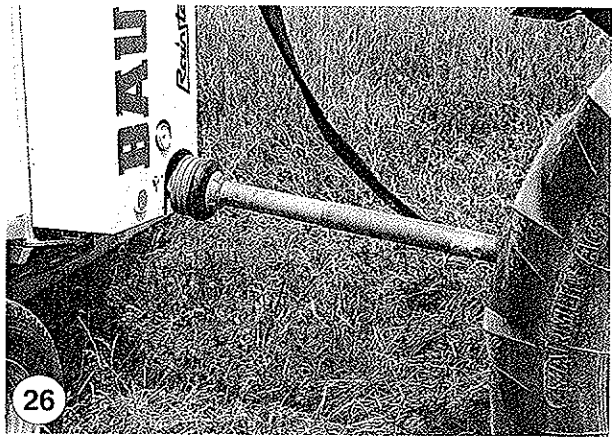

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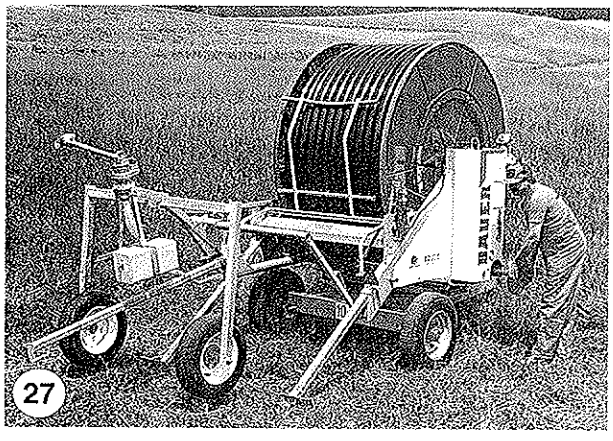

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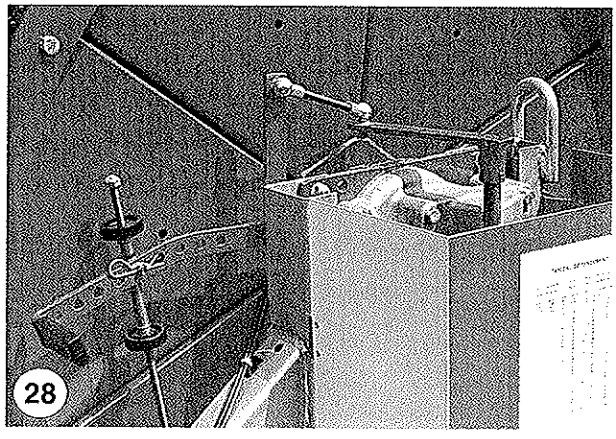
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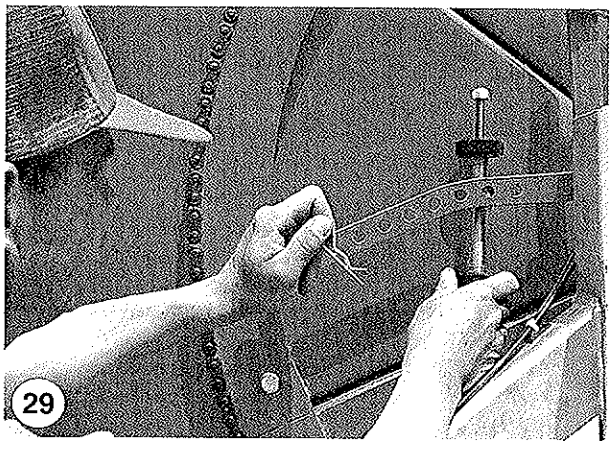
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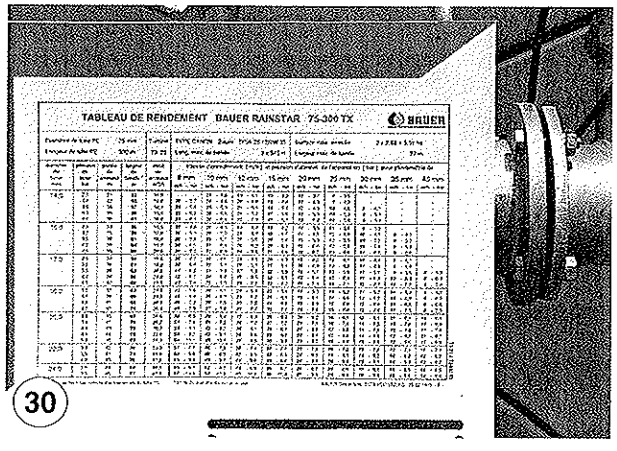

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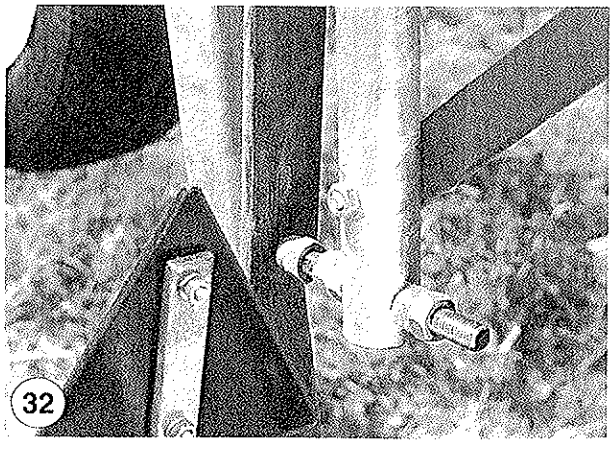
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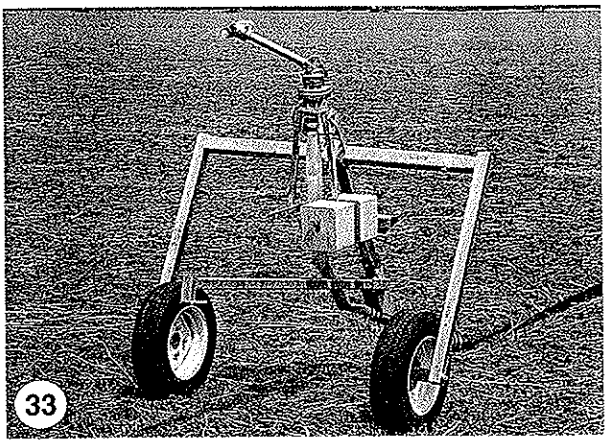
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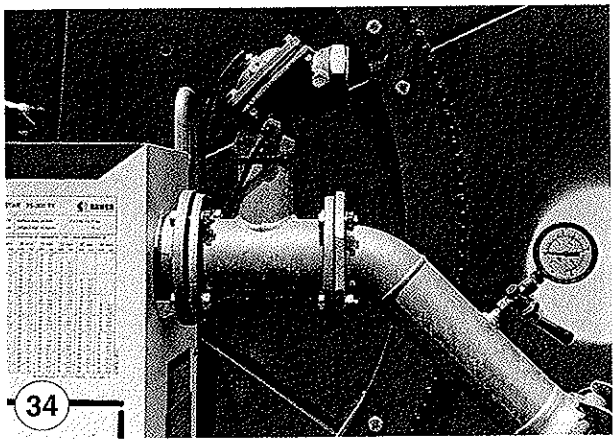
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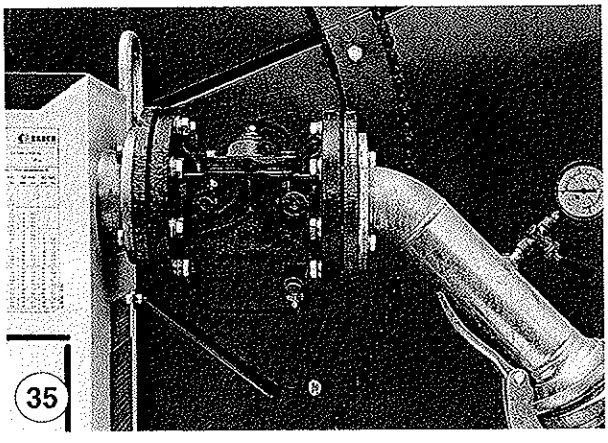
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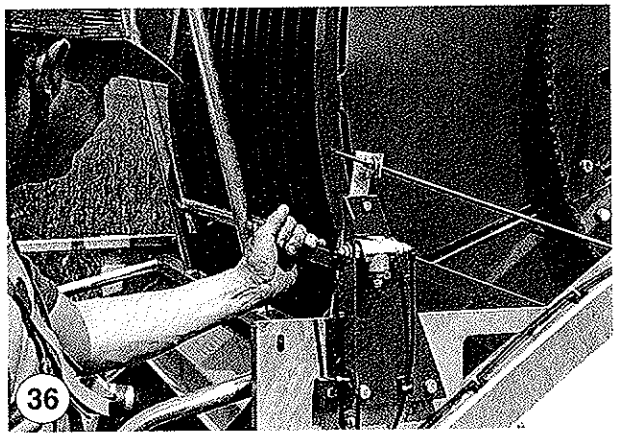
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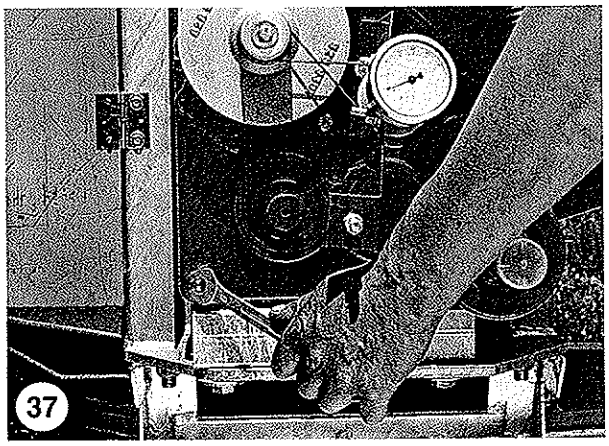
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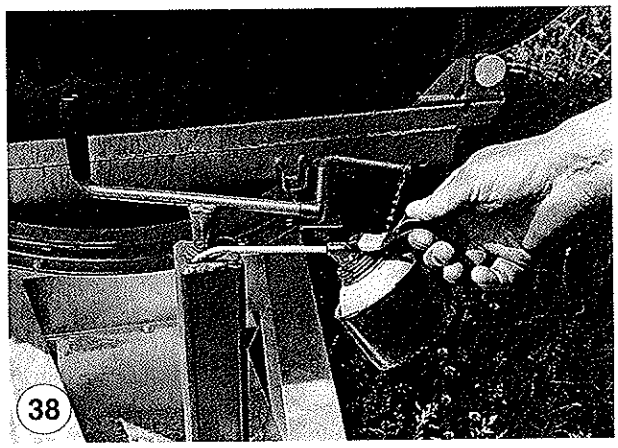
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GENERAL

BAUER products are designed and constructed carefully and subject to a system of continuos quality control. The BAUER Rainstar model 65/75/85/90 TX is a turbine-driven machine that makes irrigation a fully mechanised and time-saving job. With this type of machine it is no longer necessary to lay down and reposition individual pipes by hand for irrigating a field. The Rainstar is manoeuvred, set up and operated only with the tractor.

The BAUER Rainstar is a universal machine for varying lengths and widths of fields and it works unattended from the beginning to the end of the run.

Strict observance of the handling, operating and maintenance instructions contained in this manual is a prerequisite for long years of satisfactory and trouble-free operation. Be sure to make this manual available to all machine operators before they start working with the Rainstar.

The nameplate indicates the model name and the serial number (Fz.-Ident-Nr.). The serial number is also marked on the underframe. Please refer to these identifications in all your inquiries and correspondence, warranty matters and parts orders.

We warrant for this machine according to our General Terms and Conditions of Sale.

SAFETY PRECAUTIONS

1. Study this manual thoroughly before working with the machine for the first time.
2. Never handle the PE-pipe near the machine or the machine during the unreeling or winding up of the pipe.
3. When you pull off the PE-pipe, or pull it in with the tractor's PTO, make sure that the gear shift lever is in the proper position. Never exceed the maximum permissible speed limit!

   ⚠ **CAUTION: Improper handling can be dangerous !!!!**
4. Never adjust or service the machine (except for speed adjustment) while the machine is running.
5. Keep clear off all moving parts.
6. Never disclose moving parts by removing the protective devices.
7. Keep a safe distance from the operating sprinkler.
8. Beware of high connecting pressures!
9. Make sure that the sprinkler's water jet does not hit public roads.
10. The Rainstar is approved only for transportation in agricultural operation. For transportation on public roads you must strictly adhere to the appropriate traffic regulations.
11. When you load the machine on a truck always keep in mind that the water remaining in the pipe shifts the machine's center of gravity upward.
12. Depending on the position of the machine's center of gravity, the permissible driving speed in curves is considerably lower.
13. Strictly observe all arresting instruction given in the general specifications for the transport of the machine.
14. Before starting to irrigate fields near overhead transmission lines consult your local power supply company regarding safety distance requirements.
15. Maximum permissible speed: 10 km/h.

DESCRIPTION

The RAINSTAR is a universal irrigation machine for varying lengths and widths of fields and best suited for watering crops and seed beds, parks, horticultures, and any kind of grassland.

The main components of the RAINSTAR are a tow-wheel undercarriage on which is mounted the turntable swivelling through 270°, the reel with the special PE-pipe, the multifunctional compact gearbox and the TX 20 turbine as well as the high-rise sled particularly suited for high crops.

The material of the PE-pipe corresponds to the latest findings. One end of the pipe connects to the reel drum and to the water supply through its axle. The other end of the pipe is coupled with the high-rise sled.

The heart of the RAINSTAR is the TX 20 turbine - a full-flow turbine mounted in a flow-promoting position on the reel. It is largely insensitive to soiled water and offers maximum efficiency. The drive shaft is made of stainless steel. The regulating flap inside the turbine is coated with a wear-proof rubber lining.

The lifetime lubricated drive shaft bearing is sealed by a maintenance-free mechanical seal.

TX 20 turbine is designed for discharge quantities from 13 to 60 m³/h and features a wide operating range. Impeller speeds vary from 200 to 800 rpm.

The machine's retraction speed is infinitely variable. It is adjusted by means of the regulating lever and can be read from the tachometer (optional). Depending on the available water flow and the connecting pressure it may vary from 8 to 150 m/h. The machine connecting pressure should never exceed 11 bar.

Power is directly transmitted to the reel from the turbine via the change-speed gearbox and the chain drive. A band brake prevents fast reverse rotation of the reel in the end position when the pipe is stretched.

Gearwheels in the oil-filled gearbox act as a brake and prevent the PE-pipe windings on the reel from loosening during the pipe pull-off.

For safety reasons the drive is fitted with an emergency stop device and a reversing stop as well. With this emergency stop it is possible to interrupt the drive by hand.

⚠ **WARNING: Never remove the drive cover before the water supply to the machine has been turned off and the stretched PE-pipe has been slackened.**

To slacken the stretched PE-pipe shift the gear shift lever downward carefully (see proper procedure).

A guide block moved by a helically grooved spindle ensures that the PE-pipe is wound up properly on all layers. To keep the retraction speed constant on all layers independent of the pipe length still lying on the field, the RAINSTAR is equipped with a special layering mechanism. This compensating mechanism is actuated by the speed compensator bar of the shut-off frame that fits closely to the pipe on all layers and actuates the regulating flap of the turbine through the regulating rod.

At the end of the irrigation strip the sled/cart is automatically lifted into the transport position. Thereby the automatic drive shut-off is actuated by rods. .

When the sled has been lifted automatically and the drive has been shut off, the sled is arrested by the transport guard. If the machine is equipped with a shut-off valve the water supply is also closed simultaneously. After the shut-down the Rainstar can be transported to the next setting-up position immediately. The PE-pipe can be pulled off or laid down again and when the water supply is connected the machine is ready for the next run.

When driving on public roads the reel must be turned into the driving direction and secured with the lock bolt. The PE-pipe must be fully wound up on the reel and the sled lifted and arrested by the transport guard. The jack and both rear supports must be retracted to the uppermost position and secured with lock pins..

On public roads the drawbar must be hitched to the tractor's coupling jaw. Except for an official permit the maximum driving speed must not exceed 10 km/h. For increased safety against overturning we strongly recommend to adjust the maximum possible track width.

On principle, it is possible to transport the machine between hydrants in the field with the sled lifted on the side. In this transport configuration the driving speed must be adapted to the existing conditions and is limited to max. 5 km/h. Moreover, attention must be given to the fact that this manner of transportation requires a wider driving lane.

65 TX - 90 TXL with gearbox G2

START-UP

Before and during the first start-up of the machine grease all bearings, chains and guide parts of the winding mechanism. Use normal ball bearing grease for all bearing assemblies with grease zerks, and a viscous and durable grease for the chains, guide rods and joints.

Tighten the wheel nuts before the first start-up and check the tires for the specified pressure (see Technical data).

STEPS TO BE PERFORMED ONCE OR FROM TIME TO TIME:

(1) Set the required track width on the high-rise sled and on the undercarriage, depending on the type of crop.

(2) Place the appropriate number of balancing weights on the balancing pendulum of the sled. Two weights are sufficient for nozzle diameters from 14-24 mm. For nozzles over 24 mm and the smallest track width, the pendulum should be burdened with two additional weights.

Nozzle dia.	Track width 1500
14 - 24 mm	2 weights
from 25 mm	4 weights

(3) Adjust the part circle on the wide-range sprinkler (approx.. 220° for full strip width). For detailed instructions refer to the sprinkler manual. The WINDGUN can be adjusted to the prevailing wind conditions by changing the trajectory angle.

OPERATING MODE I: PULLING OFF THE PE-PIPE

Transport of the machine to the setting-up position:

4) During transportation the reel should be turned into the driving direction and secured with the lock pin. The sled and the jack as well as the two rear machine supports must be completely lifted or retracted.

For lateral pipe pull-off, set up the RAINSTAR on the headland at right angles to the selected irrigation strip and detach it from the tractor.

5) Adjust the undercarriage in a reasonably level position by means of the jack.

When positioning the Rainstar make sure that the machine's vertical axis of rotation is in the middle of the irrigation strip or two crop rows.

6) For pulling off the PE-pipe laterally, withdraw the lock bolt, turn the reel into the direction of the irrigation strip and secure it again with the lock pin.

7) Pull out the bolts locking the machine supports during transportation . . . . .

⚠ **Caution:** The machine supports slide to the ground by themselves.

8) ..... press the supports firmly into the ground with the plug-on hand wheel and

9) ..... and secure the supports with the bolts.

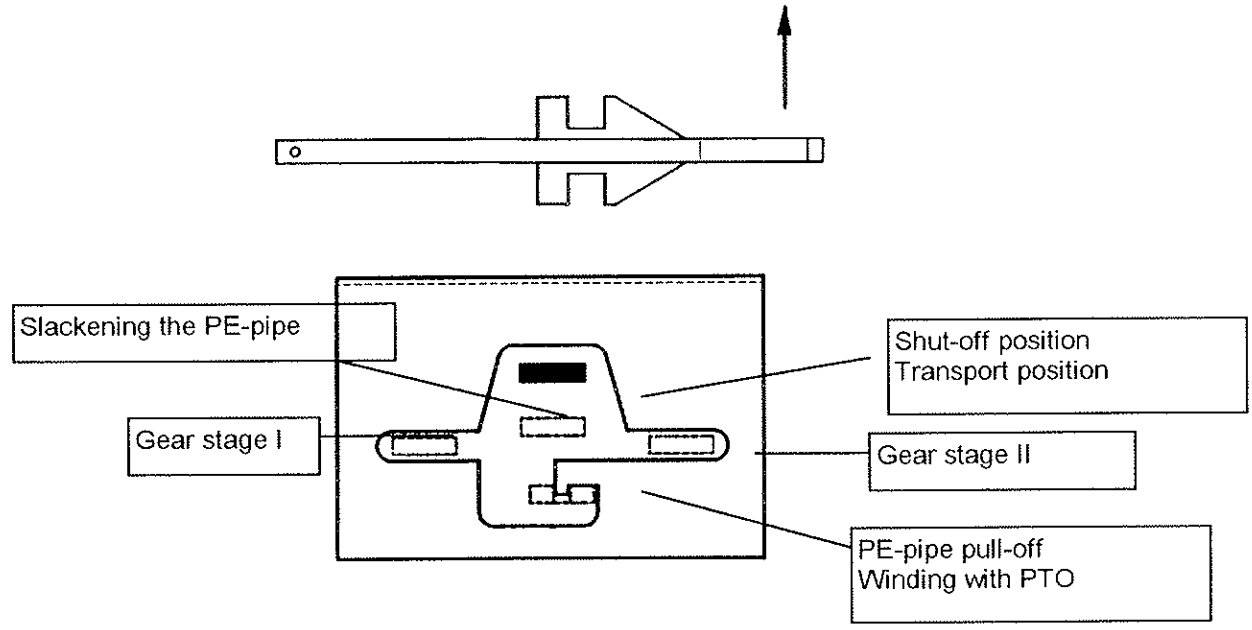
If the soil is very hard the supports must in lowered into holes prepared previously for this purpose.

⚠ **Caution:**

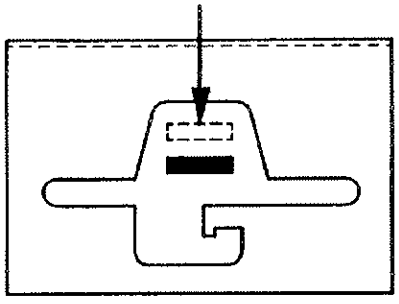
LOWERING THE SLED

10) When the machine is in the working position, loosen the mechanical lock of the sled. Push the locking lever upward.

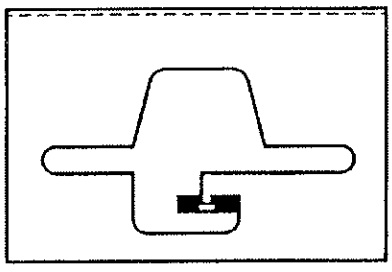
⚠ **WARNING:** The position of the operator must be outside of the machine supports.



11) Push the gear shift lever down carefully - the sled moves down slowly.



12) Move the gear-shift lever to the "PE-pipe pull off" position. A spring presses the lever up and locks it.



PE-PIPE PULL OFF

13)14) Pick up the draw-out hook with the toolbar and pull out the sled into the field.
If you have a sled, it is lifted up (use 2 draw-out hooks). The standard wheel cart or the asymmetric wheel cart should not be lifted off the ground, therefore one drawing-out hook is sufficient.
Pull-off speed: Never exceed 5 km/h !

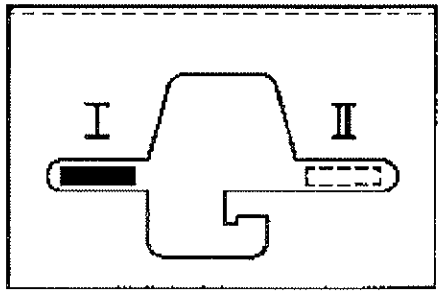
Do not stop abruptly. Always slow down gradually in the field or when the pull-off is finished.
Stop pulling off the pipe when the white marking on the reel becomes visible.

⚠ **CAUTION:** If the PE-pipe has been exposed to the sun for a longer period of time or if the surface temperature rises above 35°C you must let water run through the pipe to cool if off before the unwinding or retraction procedure.

15) Couple the pressure hose and open the water supply.

16) When the full operating pressure is reached and clear water is discharged from the sprinkler nozzle in a full jet without air bubbles, push the gear shift lever to the "PE-pipe retraction" position.

Position I slow retraction
Position II fast retraction



If the selected position is wrong:
CAUTION: Never change gears while the PE-pipe is under tension !

11) Procedure:
I - O - slackening of the PE-pipe - II
II - O -slackening of the PE-pipe - I

Switching into gears I and II is only possible when the sled is lowered and the turbine is turning!

⚠ **Caution:**
When the sled is lifted in the shut-off position the gear-shift lever is held in the 0 position and must not be shifted !

The reel starts retracting the PE-pipe.

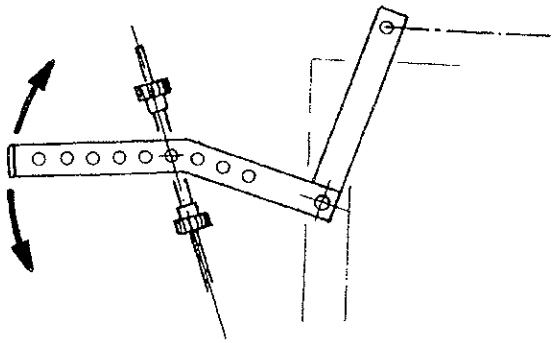
SPEED ADJUSTMENT

⚠ **Note:** Do not start setting the speed until one half winding of the PE-pipe has been wound up on the

18) reel and is already stretched.

Loosen the knurled nuts that secures the adjusting lever. Set the desired retraction speed with the adjusting lever. The speed can be read from the tachometer (optional). Then secure the adjusting lever again with the knurled

Lever up = slower
Lever down = faster



⚠ **NOTE:** The drive features 4 speed ranges (see functional description page 16).

19) Therefore the speed reading on the tachometer (optional) must be applied to the appropriate chart.

20)21) At the end of the irrigation run the sled is lifted automatically and the drive is shut-off through shut-off rods. The water supply is closed by the "overpressure shut-off valve" option or the pump unit is shut down by the "low-pressure shut-off valve" option in combination with a pressure switch.

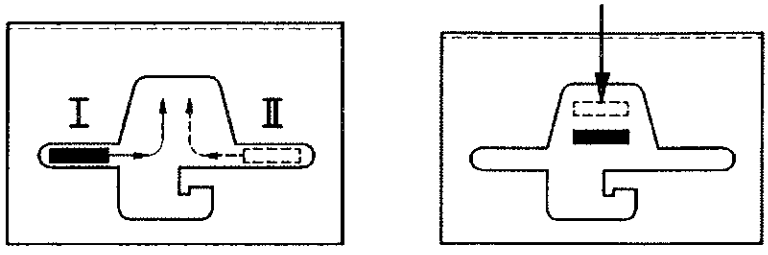
22) When the pipe has been fully retracted the machine supports have to be relieved with the hand wheel, moved into their transport position and secured with the locking bolt.

If the Rainstar is misaligned during the retraction of the PE-pipe it must be realigned. For this purpose the PE-pipe must be slackened first.

Correct procedure:

1. Turn off the water supply for the Rainstar. The PE-pipe slightly slackens through the turbine that acts like a hydraulic brake.

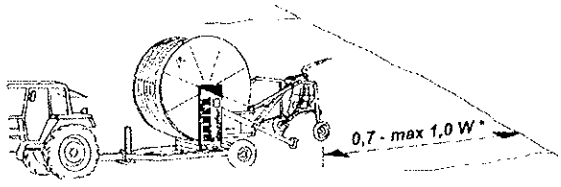
11) 2. Move the gear shift lever to the middle position and slacken the PE-pipe by pushing the lever down slowly and carefully.



3. Realign the machine and support it adequately.
4. Put the gear shift lever into the desired position.
5. Open the water supply again. PE-pipe retraction continues.

OPERATING MODE II: Laying down the PE-pipe

In addition to the pipe pull-off the PE-pipe can be laid down on the field while the machine is hauled over the field with the tractor. This operating mode is mostly used in situations where heavy soil makes it impossible to pull the sled over the field or where the field is longer than one full PE-pipe length. Moreover, the laying down method allows using smaller tractors because no pulling force is applied on the pipe.



Drive the Rainstar machine into the field allowing for the sprinkler's distance of throw.

*) W = distance of throw of the sprinkler

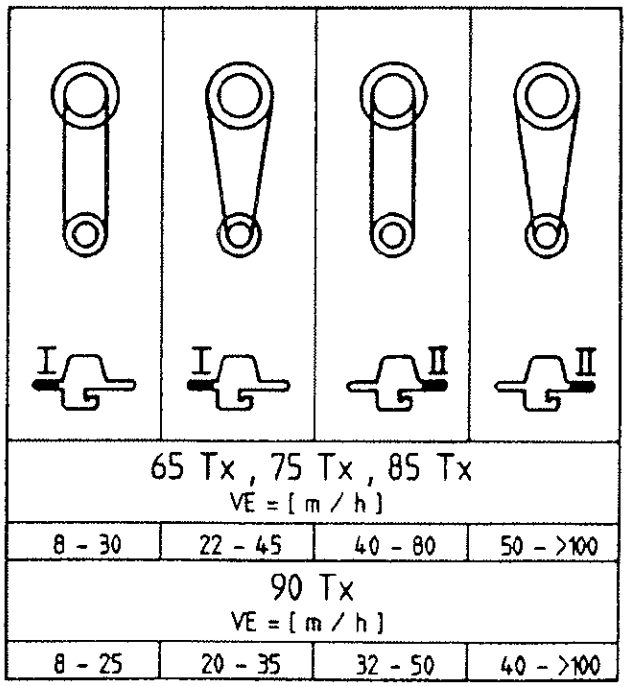
23) Lower the sled according to the steps described under Operating mode I "Lowering the sled" and anchor it slightly. Then drive over the field with the Rainstar.

Carry out all other steps as described before.

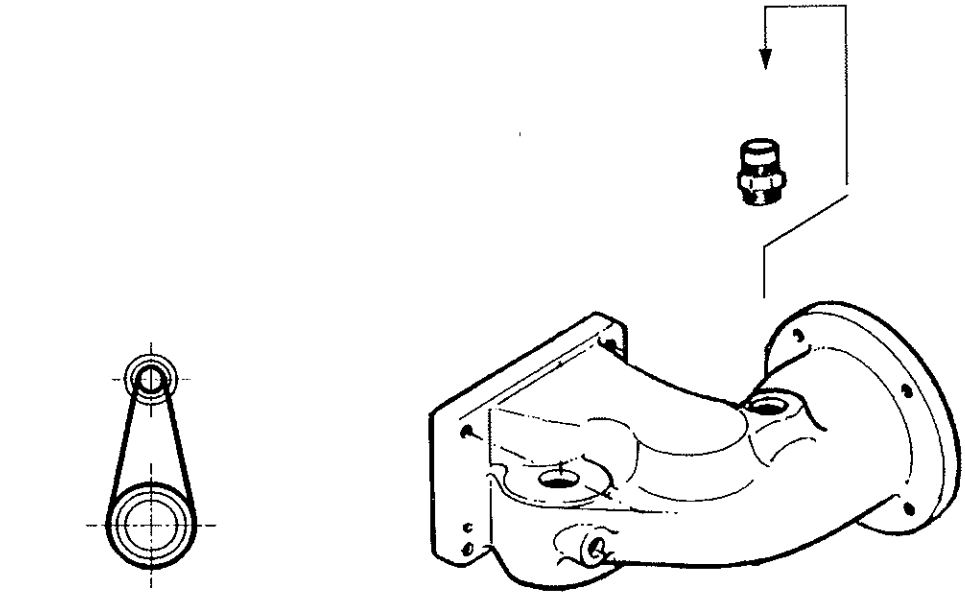
FUNCTIONAL DESCRIPTION OF THE MAIN COMPONENTS
MACHINE DRIVE - FULL-FLOW TURBINE

24) The TX 20 full-flow turbine is a special design turbine with large cross sections and minimum pressure loss. These features allow it to reach high retraction speeds even with very little flow rates. The turbine has a very flow-promoting design and is mounted directly on the reel shaft. It produces the energy needed for the retraction of the PE-pipe. The speed is taken off the impeller shaft and transmitted to the gearbox by a two-stage V-belt drive.

25) The change-speed gearbox incorporates gear wheels that reduce the turbine speed.
The gearbox features two speeds.
Stopping of the reel drive at the end of the strip is ensured by disengagement of the tooth clutch.

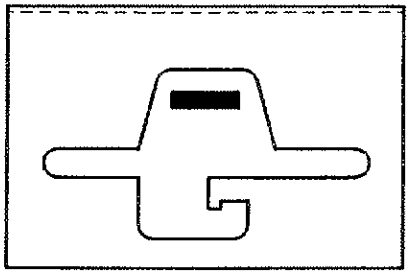


In combination with both belt transmission, the two-speed gearbox adapts perfectly to the existing operation conditions. Therefore the following retraction speeds (m/h) are possible:



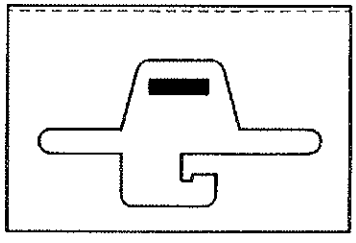

I

⚠ **WARNING. The drive cover may be removed for service or changing the transmission only when the PE-pipe is completely slackened !!**
The gear shift lever must be moved to the shut-off position !!! This lever position must also be used for transporting the machine on the road !

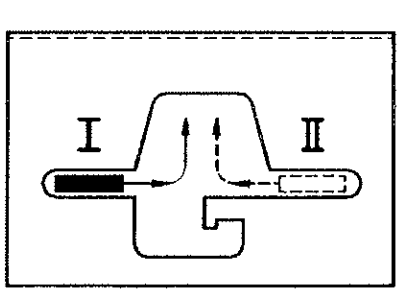


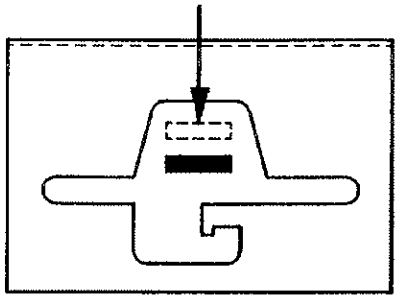
Changing from I to II or the other way round is easy to do with the gear shift lever when the sled is lowered and the turbine rotating.

Note also the following:
When the sled is lifted in the shut-off position, the gear shift lever is held in the 0 position and it is not allowed to switch gears! When the PE-pipe is under tension it must be slackened before changing into the next speed!



11) The gear shift lever is moved from one of the gear stages to the middle position. A spring presses the gear shift lever up and prevents fast reversing of PE-pipe and reel through the band brake. When you press the lever down very carefully the brake is released and the PE-pipe slackens.





16) Now you can change to the desired speed.

DRIVING THE REEL WITH THE PTO SHAFT:

26) ***If required, the PE-pipe can be wound up by means of the tractor's PTO and a drive shaft. Put the gear shift lever into zero position. A spring presses the gear shift lever into the locking recess. In this position the band brake is released. This is also the position of the gear shift lever for the PE-pipe pull off.***

Winding up the PE-pipe with the PTO is necessary when natural rainfall makes it unnecessary to continue irrigating a field with the Rainstar or if the PE-pipe was pulled off for draining and winterization.

⚠ **NOTE:**

- Retract the pipe at the lowest possible PTO speed - start slowly and smoothly and avoid jerks.
- Avoid strain by excessive articulation of the PTO shaft.
- If the PE-pipe is covered with mud it should be loosened and set free to reduce the tension load before it is wound up.
- If the soil is deep and heavy the PE-pipe must be wound up more slowly to make sure that the permissible loads on the PE-pipe and on the RAINSTAR are not exceeded.
- If you disengage the PTO shaft during the PE-pipe retraction, make sure that the pipe reel stands still before you re-engage the PTO shaft. Double motion can cause severe damage!

27) • When you drive the reel with the PTO shaft the automatic shut-off system is inactive. Therefore you must stop the PTO shaft in time and wind up the end of the PE-pipe with the hand wheel. This will prevent damage to sled, shut-off system, gearbox, and so on.

SPEED CONTROL

The retraction speed is infinitely variable with the speed regulating lever which is secured with the
18) knurled nuts after the desired setting has been made.
It remains almost constant from the first to the last layer and over the individual windings on each layer too.

This is achieved by the readjustment of the turbine speed through the speed compensation bar fitting closely to every layer of the PE-pipe during the run

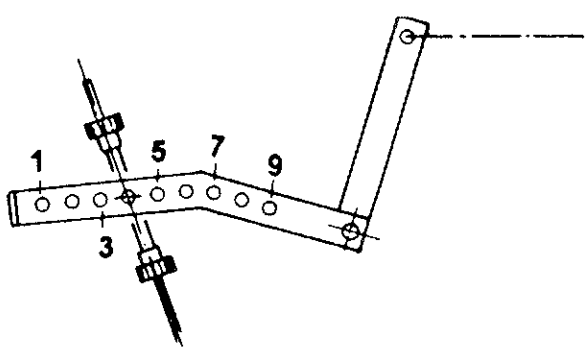
28) . . . . and the regulating rod which actuates the regulating flap located directly on the turbine.

29) Varying soil conditions and low flow rates may cause uneven retraction speeds in spite of the layering mechanism.
If the retraction speeds up or slows down, the regulating rod must therefore be hooked into the next suitable hole.

The precise speed control adjustment depends also on the PE-pipe diameter and differs for the pipe dimension 65 to 90 mm.

SETTING THE SPEED CONTROL ON TX RAINSTARS

Wassermenge Water flow Débit m³/h	Einzugsgeschwindigkeit Retraction speed Vitesse d'enroulement m/h	Loch/Hole/Trou 65 TX	75 TX	85 TX	90 TX
13	10 25	5 1	6 6	3 1	- -
20	10 20 35	8 7 8	6 6 6	7 5 6	9 1 1
26	10 25 45	8 7 8	6 6 7	5 7 7	7 6 6
32	12 25 55	9 8 9	7 6 6	7 8 7	7 7 7
52	15 25 60	- - -	- - -	9 9 9	9 9 9



TACHOMETER

19) The actual retraction speed of the sprinkler sled is indicated on the tachometer.

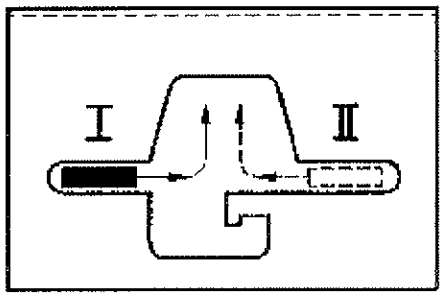
20) The appropriate value is taken from the irrigation chart sticker dependent on the connecting pressure, nozzle size and application rate.

⚠ NOTE: The speed reading on the tachometer applies only to the innermost PE-pipe layer (depending on the individual gear transmission). The retraction speed on the 2nd, 3rd and 4th layers must be taken from the diagram. The radial lines on the diagram stickers symbolise the individual layers of the PE-pipe.

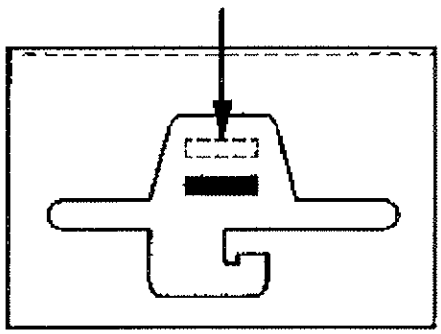
EMERGENCY SHUT-OFF

17) If something unforeseen happens the pipe retraction can be interrupted. . Pull the gear shift lever with the open hand from the gear position I or II into the middle position (Do not operate the lever with the closed hand or let it go immediately!) The gearbox is disengaged, 0 position.

A spring presses the lever up (shut-off position) and prevents fast reversing of PE-pipe and reel.



11) PE-pipe is slackened by carefully pushing the gear shift lever down.



WINDING MECHANISM

31) This mechanism operates synchronously with the reeling or unreeling of the PE-pipe. Starting from the reel, it is operated through a chain and the helically grooved spindle transporting the guide block of the PE-pipe. The winding mechanism ensures that winding for winding of the pipe is guided properly. When the machine is put into service for the first time the full length of the PE-pipe should be pulled off the reel to let it to take a circular shape under pressure. This step is essential for a properly functioning winding mechanism.

SHUT-OFF AND SAFETY EQUIPMENT

32) Unattended performance of the Rainstar is made possible by a final and safety shut-off system. The final shut-off is actuated when the sled presses against the shut-off frame, which in turn operates the gear shift lever through rods. This way the drive is stopped. To avoid troubles by faulty windings of the pipe on the reel the shut-off is also actuated through the speed compensator bar that is part of the shut-off frame.

SLED/CART

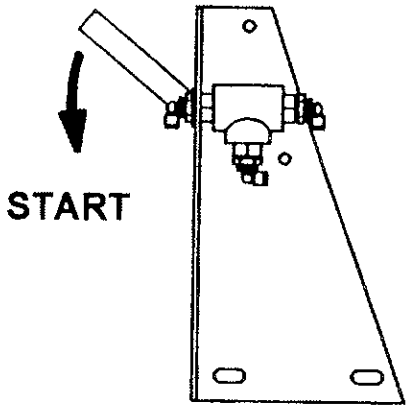
33) The high construction of both the symmetric and asymmetric wheel cart and of the sled is best suited for optimum crop protection. (Asymmetric wheel cart and sled options). With infinitely adjustable track width the sled/cart adjusts excellently to any crop row spacing. For easier PE-pipe pull-off it is equipped with a draw-out hook.

13) The tractor picks up the sled/cart at this hook with the toolbar and pulls off the PE-pipe. The sled design is fitted with a second hook. The sled is lifted and the PE-pipe pulled off the reel.
For turning the pipe reel or changing the machine's setting-up position, the sled/cart must be in its end position.

Depending on the sprinkler type the nozzle height of the mounted sprinkler is
approx. 1700 - 1860 on 65 TX
approx. 1800 - 1960 on 75/85 TX , 85 TXL
approx. 1960 - 2120 on 90 TX , 90 TXL
At the end of the retraction, when the cart/sled moves in to the machine, it is hoisted automatically. On account of its self-balanced, freely-suspended mounting the sprinkler is not tilted. It always maintains the optimum position in view of distance of throw and distribution quality. The self-balanced mounting assembly compensates also slopes in longitudinal direction.

OVERPRESSURE SHUT-OFF VALVE OPTION

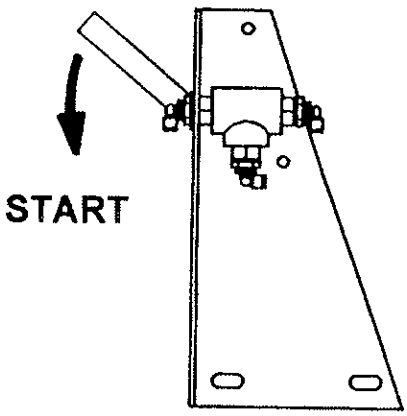
35) With an overpressure shut-off valve, the water supply to the machine is turned off completely at the end of the irrigation run. When the valve closes, the pressure in the supply line rises.
Therefore this type of valve can only be used in combination with an automatic shut-off device for
36) the pumping unit. Before starting up again with water the hand lever must be shifted to the START position (downward) to relieve and open the shut-off valve.



LOW-PRESSURE SHUT-OFF VALVE OPTION

34) With the low-pressure shut-off valve option a diaphragm valve is opened at the end of a run through which a considerable part of water is discharged into the open. This causes a sudden pressure decrease in the delivery line (to about half the original pressure), which actuates the pressure switch mounted on the pumping unit and shuts down the pumping unit and thus also the water supply.

Therefore this valve can only be used in combination with an automatic pump shut-off device.
36) Before starting again with water the hand lever of the three-way cock must be shifted to the START position (downward). This way the water pressure will close the valve.



WINTERIZATION - DRAINING

In areas where frost is likely to occur in winter after the irrigation season, the machine must be drained in time. A compressor with a minimum air capacity of 800 l/min at 2.5 bar overpressure is best suited for that purpose. Connect the compressor at the inlet side of the machine. For blowing out the water, the PE-pipe should not be pulled off but rather stay on the reel. If pulled off for draining, the pressureless PE-pipe would take an impermissible oval shape and it would be impossible to rewind properly winding for winding. Before the blow-out procedure the nozzle of the wide-range sprinkler must be turned out or the connecting hose underneath the sprinkler uncoupled. The small of amount of water remaining in the PE-pipe after the draining will not do any harm.

Turn out the drain plug on the bottom of the TX 20 turbine. We recommend to turn it in again only when you start up the machine again at the beginning of the next irrigation season. If a shut-off valve is mounted the thin hoses also have to be drained by opening the screwed joints. Clean the Rainstar thoroughly and regrease all appropriate parts. The machine should preferably be stored in a roofed shelter where it is protected from exposure to the weather.

37) Drain screw for gear oil.

38) Oil or grease the jack.

90 TXL with gearbox G4

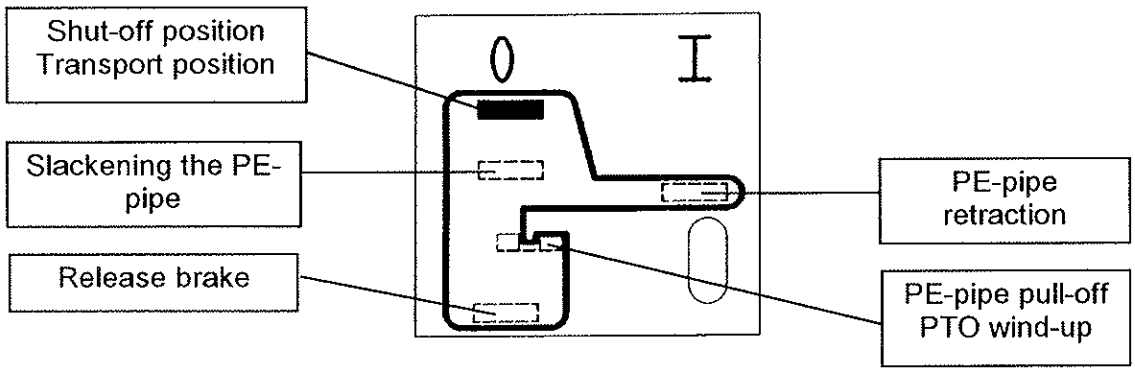
PUTTING INTO OPERATION
see page 12

OPERATING MODE I: PE-PIPE PULL-OFF
see page 12

LOWERING THE SLED/CART
see page 14

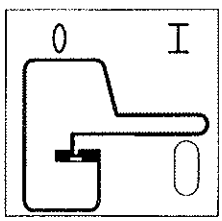
SWITCHING POSITIONS OF THE GEAR-SHIFT LEVER

SWITCHING POSITIONS OF THE SHUT-OFF LEVER



PE - PIPE PULL-OFF

Move the gear-shift lever to "PE-pipe pull-off" position .
A spring presses the lever up and locks it.



Pick up the doubledrawbar with the toolbar and pull the sled/cart into the field.
If you are using a skid sledge, it is lifted up.
The standard wheel cart or asymmetric wheel cart need not be lifted.
Pull-off speed: Do not exceed 5 km/h!

Do not stop abruptly. Always slow down gradually in the field or at the end of the pull-off.
Stop pulling off the pipe when the white marking line becomes visible on the reel.

Caution: If you want to pull off the PE-pipe in a wide curve make sure that you pull it off in a straight line approx. 80 to 100 m at the beginning (90° to the reel) and start the wide curve afterwards.

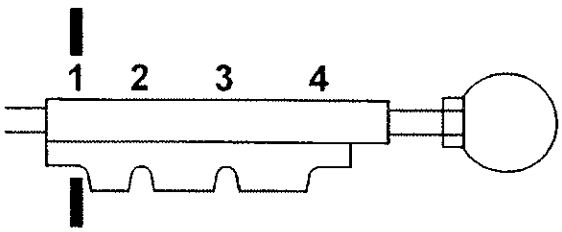
⚠ CAUTION: If the PE-pipe has been exposed to the sun for a longer time or if its surface temperature rises above 35°C for other reasons, you must let water run through the pipe to cool it off before the pull-off or retraction.

Couple the pressure hose and open the water supply.

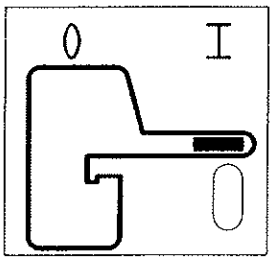
Move the gear shift lever to the appropriate position.

TX 20 - T 60

1	8	--	20	m / h
2	16	--	35	m / h
3	22	--	50	m / h
4		> 35		m / h



When the full operating pressure has been reached and a full water jet without air bubbles is discharged from the sprinkler's nozzle, push the gear shift lever to "PE-pipe retraction".

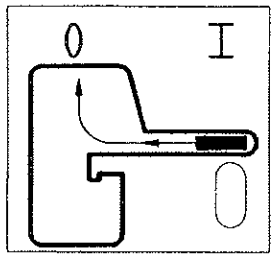


If you selected the wrong gear speed:

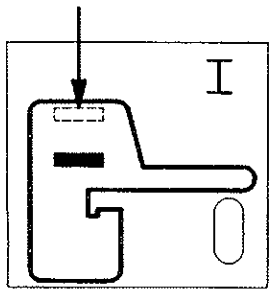
⚠ **BE CAREFUL WHEN CHANGING THE SETTING:**
If the PE-pipe is stretched, SLACKEN IT !

Proper procedure:

Pull the shut-off lever into the shut-off position.



and slacken the PE-pipe by carefully pressing the shut-off lever downward.



⚠ **Note:**
Switching into gear speed 1 to 4 is possible only when the turbine is rotating!

Move the gear-shift lever into the desired position and set back the shut-off lever to "PE-pipe retraction".

The reel starts pulling in the PE-pipe.

SPEED ADJUSTMENT
see page 16

OPERATING MODE II: LAYING DOWN THE PE-PIPE
see page 17

FUNCTIONAL DESCRIPTION OF THE MAIN COMPONENTS
MACHINE DRIVE - FULL-FLOW TURBINE

The full-flow turbine TX 20 is a special turbine design with large cross sections and minimum pressure loss. Therefore it is possible to reach high retraction speeds even with only very little flow. This turbine is mounted in the most energy-saving position directly on the reel shaft and provides the energy required for retracting the PE-pipe. The turbine speed is taken directly from the impeller shaft and transmitted on the gearbox by means of a two-stage V-belt drive.

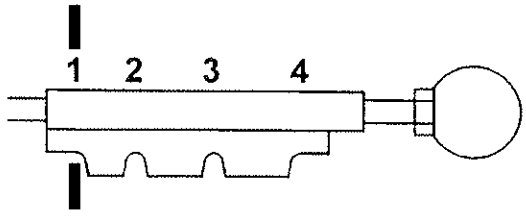
The BAUER gearbox reduces the turbine speed according to the turbine speed setting.
The gearbox is equipped with four speed gears. Stopping of the reel drive at the end of the irrigated strip is ensured by disengagement of the tooth clutch.

The four-speed gearbox adapts the machine's performance perfectly to the existing operational conditions.
Therefore the following retraction speeds [m/h] are possible:.

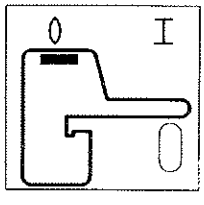
GEAR SPEED SELECTION

TX 20 - TX 60

1	8	--	20	m / h
2	15	--	35	m / h
3	22	--	50	m / h
4		> 35		m / h

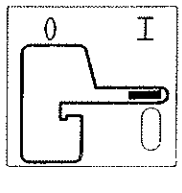


⚠ <u>Warning:</u> **Removal of the drive cover for service is only permitted with the PE-pipe completely slack and the water supply turned off !!!**
The shut-off lever must be moved to the shut-off position !!!
This shut-off position must also be used for transporting the machine on the road !!!

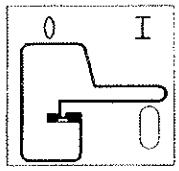


Changing between gears 1 to 4 is very easy with the gear shift lever when the turbine is rotating.

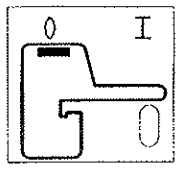
But note:
If the shut-off lever is set at "PE-pipe retraction", the gear shift lever is locked and cannot be shifted.



If the shut-off lever is in the "PE-pipe pull-off "



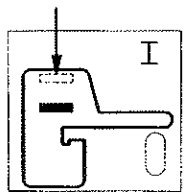
or shut-off position,



you can switch to gears 1 to 4, as required.

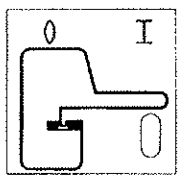
Warning: slacken the PE-pipe before shifting!

If the shut-off lever is in the shut-off position, carefully pushing it downward will release the band brake and slacken the PE-pipe. (see also page 15)



PTO REWIND:

If necessary, you can also wind up the pipe by means of the tractor's PTO.
For this purpose the shut-off lever must be shifted to "PE-pipe pull-off.



A spring presses the gear shift lever into a locking recess. In this position the band brake is slightly released and does not produce any braking action during the wind-up.

Winding up the pipe with the PTO will become necessary if there is no need to continue irrigating due to natural rainfall, or if the pipe has been pulled off for winterization.

⚠ CAUTION:

- Start retracting the pipe at the lowest possible PTO speed - slowly and smoothly - avoid jerky movements.
- Avoid additional strain by excessive articulation of the PTO drive shafts.
- If the PE-pipe is covered with mud it should be loosened and lifted before rewinding to reduce the tension load.
- The PE-pipe can be released and lifted off the ground by tying around a hemp rope or a fabric belt and pulling it along the pipe.
- If the soil is deep and heavy, rewind the pipe more slowly to make sure that the permissible loads on the PE-pipe and on the RAINSTAR are not exceeded!
- If you disengage the tractor's PTO during the PE-pipe rewind, make sure that the pipe reel stands still before you re-engage the PTO. (Slacken the PE-pipe !) Double motion may severely damage the equipment!
- When driving the reel with the PTO drive shaft, the automatic final shut-off is inactive. Therefore you should stop the PTO in time and wind up the end of the PE-pipe with the hand wheel. This will prevent damage to sled, shut-off system, gearbox, and so on.

SPEED CONTROL

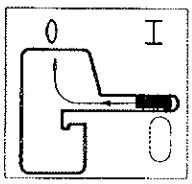
see page 20

TACHOMETER

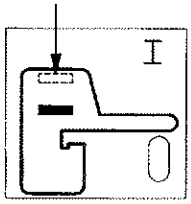
see page 22

EMERGENCY SHUT-OFF

If something unforeseen happens, you can interrupt the pipe retraction with the emergency stop device. Pull the gear shift lever with your open hand from "PE-pipe retraction" to the shut-off position. (Do not operate the lever with your hand closed, or release it immediately!) The gearbox is disengaged.
A spring snubs the lever up (shut-off position) and the band brake prevents fast reversing of PE-pipe and reel.



Slacken the PE-pipe by pushing down the gear shift lever carefully.



SERVICE AND MAINTENANCE

We cannot emphasise often enough that proper and timely servicing are essential for the operating reliability and service life of a machine. At the end of each irrigation season the Rainstar should be thoroughly checked and cleaned and all parts regreased properly.

Machine part	Service interval	Lubricant, grease, oil
1. Helically grooved spindle of the winding mechanism	every 250 hours	Alvania Grease 3
2. Drive chain of winding mechanism	every 250 hours	Alvania Grease 3
3. Driver (spindle nut) of winding mechanism	every 250 hours recommended replacement: after 2500 service hours	Alvania Grease 3
4. Driving chain	as required	Alvania Grease 3
5. Change-speed gear	Change oil for first time after 500 service hours and then after every 500 to 800 hours or at least once a year	6,0 l oil SAE 90 EP
6. Ball race	every 500 hours	through grease zerk Alvania Grease 3
7. Jack	as required	Oil SAE 20,Alvania Grease3 through grease zerk
8. Shut-off position on sled lift bracket	as required	Alvania Grease 3
9. Screwed joints		Tightening torques
Turntable side frame		210 Nm
Ball race on turntable and undercarriage		85 Nm
Hitch		210 Nm

FAULT FINDING

FAULT	CAUSE	REMEDY
The PE-pipe cannot be pulled off.	Incorrect gear shift lever position.	Put it into the pull-off position.
	Brake band sticks to the brake drum.	Loosen the brake band.
PE-pipe retraction stops before the final shut-off is actuated	Turbine blocked by a foreign body.	Remove the foreign body.
	Pressure drop in supply line.	Check pumping station and hydrant connections.
	Overwinding PE-pipe actuates the safety shut-off.	Adjust the winding mechanism.
		Repair broken winding chain.
The final shut-off is actuated but the shut-off valve does not close.	Values for shut-off valve actuation are not set correctly.	Adjust the settings according to the manual.
	Thin plastic hose of shut-off valve blocked or broken.	Replace plastic hose.
The reel overwinds or the windings become loose when the PE-pipe is pulled off.	Tractor stopped abruptly.	Slow down gradually.
	No oil in the change-speed gear.	Refill oil.
The retraction speed varies from one PE-pipe layer to the next.	Varying ground conditions.	Adjust speed control to the existing ground conditions (change rod position on the lever of the layering mechanism).
The selected retraction speed is not reached.	Incorrect drive transmission.	Select proper V-belt and gear transmission.
	Blocked sprinkler nozzle.	Remove blockage.
	General: compare connecting pressure and water flow with performance chart values.	
Sled/cart is not lifted.	Incorrect transmission.	Select proper V-belt and gear transmission.

PROPER USE

BAUER RAINSTARS are designed exclusively for normal applications in agricultural operation (proper use).

Any use beyond these normal applications is regarded as improper use. The Manufacturer is not liable for any damage resulting from improper use, which is the sole responsibility of the User.

Proper use also includes strict observance of any of the Manufacturer's instructions regarding the operation, service and maintenance of the machine.

BAUER RAINSTARS shall be operated, serviced and repaired by no other persons except those who are familiar with the machine and informed about the hazards.

All appropriate regulations pertaining to accident prevention, as well as any other provisions generally accepted in respect of safety, occupational medicine, and road traffic must be strictly adhered to.

Unauthorised modifications of the machine's configuration will discharge the Manufacturer of any liability for damage resulting from such modifications.

General Specifications for Safety and Accident Prevention

Basic rule:

Check the working and traffic safety of the machine before every use!

General:

1. All specifications generally valid for safety and accident prevention must be observed in addition to the instructions contained in this manual.

2. The warning and instruction signs affixed to the machine contain very important information for safe operation: please observe them for your safety!

3. Do not use a machine unless all guards and safety devices are mounted in their proper working position!

4. Acquaint yourself with all parts and controls, and their respective principle of operation before starting to work with the machine. Do not wait until you've started operating !

5. The operator's clothing should fit tightly! Avoid wearing loose clothes.

6. Before starting to drive and operate check the area around the machine! (Children !) Make sure to have a good view!

7. Riding on the machine during operation and transport is prohibited!

8. Couple and secure the machine in accordance with regulations and only with the specified equipment!

9. All supports must be positioned properly when the machine is put up or dismounted. (Stability!)

10. Special care is required when the machine is coupled to or uncoupled from the tractor!

11. Observe the permissible axle load and overall weight!

12. Observe the permissible dimensions for transport!

13. Observe the max. permissible carrying capacity of the trailer coupling, pendulum drawbar, or automatic pick-up hitch!

14. Ensure sufficient flexibility of joint when a drawbar is used!

15. Inspect and mount all equipment required for transport such as lighting, warning signals, and safety devices.

16. All control and operating devices (cables, chains, rods, etc.) of remote-controlled equipment must be fitted in a manner that prevents unintentional actuation in all transport and working positions!

17. For driving or transporting on public roads the machine must be adjusted according to the appropriate regulations and secured according to the Manufacturer's instructions!

18. Never leave the driver's cab during a ride!

19. Always adjust the driving speed to the actual site conditions: avoid sudden turns when driving uphill or downhill or transverse a slope!

20. Trailed machines and residual water in the machine influence the road behaviour and the steering and braking capacity. Make sure that proper steering and braking are possible!

21. When driving in curves always keep in mind the specific behaviour of this type of machine with regard to overturning!

22. Never start up the machine unless all safety devices are mounted and in their proper position!

23. Staying in the working range of the machine during operation is dangerous and prohibited!

24. Never stay in the turning range of the machine!

25. All externally powered devices (e.g. hydraulics) bear a crushing and shearing hazard!

26. Never fail to secure the machine before you leave the tractor! Turn off the engine and pull out the ignition key!

27. Nobody is allowed between the tractor and the irrigation machine unless the tractor has been secured by means of the parking brake and/or wedges under the wheels!

28. Before driving on public roads drain all water from pipes and spraying devices and arrange them in the proper position in accordance with regulations!

29. Before starting to irrigate near overhead transmission lines you should consult your competent power supply company with regard to the safety distances that have to be allowed (VDE rule 0105 Section 15 Art. 6.3)!

Power take-off
(applies only to PTO driven implements)

1. Use only the types of PTO drive shafts recommended by the implement Manufacturer!

2. The drive shaft protection tube and guard as well as the P.T.O. guard on the machine must be mounted and in proper working order!

3. When using a telescopic PTO shaft observe the specified overlap in the transport and working position!

4. Never connect or disconnect the PTO drive shaft unless the PTO is stopped, the engine turned off, and the ignition key pulled out!

5. When using a drive shaft with an overload or overrunning clutch, which are not protected by the guard on the tractor, always mount the shaft with the overload or overrunning clutch on the machine side!

6. Make sure the telescopic drive shaft is always connected and secured properly!

7. Attach the safety chain to keep the drive shaft guard from rotating with the shaft!

8. Before you turn on the PTO make sure that the selected tractor PTO speed and direction of rotations corresponds with the permissible direction of rotation and speed of the machine.

9. Before starting the PTO make sure that nobody is standing in the danger zone of the machine!

10. Never turn on the PTO when the engine is turned off!

11. When working with the power take-off nobody is allowed near the turning PTO or drive shaft!

12. Always turn off the PTO immediately when the articulation angle gets too big, or if the PTO is not needed!

13. For cleaning, greasing or adjusting the PTO driven machine or the drive shaft, the PTO and the engine must be turned off and the ignition key pulled out!

14. When the drive shaft is removed put the safety shield on the PTO shaft!

15. If a defect is detected repair it immediately before starting to work with the machine!

Hydraulic system

1. The hydraulic system is under high pressure!

2. When hydraulic cylinders or motors are connected, make sure that the hydraulic hoses are connected as specified!

3. Before coupling the hydraulic hoses with the tractor's hydraulic equipment make sure that the entire hydraulic system is pressure-less on the tractor and on the machine as well!

4. The coupling sleeves and plugs of the hydraulic connection lines between tractor and machine, which control functions of the machine, should be marked to avoid malfunctions! Erroneously exchanged connections will cause reversed functions - e.g. lifting instead of lowering --> Accident hazard!

5. The hydraulic hoses must be inspected at regular intervals and replaced immediately in case of damage or ageing! The replaced hoses must comply with the technical specifications of the machine supplier!

6. When looking for leaks use the proper facilities because of the injury hazard!

7. Liquids emerging under high pressure (hydraulic oil) can penetrate the skin and cause serious injuries! Injured persons must see a doctor immediately! Danger of infection!

8. Before working on the hydraulic system it must be depressurised and the engine turned off!

Tires

1. When handling the tires make sure that the machine is firmly parked and secured against rolling (wedges)!

2. Mounting tires and wheels requires sufficient knowledge and proper tools!

3. Tires and wheels must be repaired only by specialists with the appropriate tools!

4. Check the tire pressure regularly! Observe the specified tire pressure!

Maintenance

1. For repairs, maintenance and cleaning work, and for the elimination of defects the drive must always be stopped and the engine turned off - pull out the ignition key!

2. Check proper fit of all nuts and bolts regularly and tighten them, if necessary!

3. Always use suitable tools and gloves to exchange cutting tools!

4. Dispose used oil and grease in accordance with the appropriate regulations!

5. Always turn off power before working on the electric system!

6. Protective devices that are subject to wear must be inspected at regular intervals and replaced in time!

7. All spare parts must meet the Manufacturer's minimum technical specifications! This is the case with original spare parts!

8. Before electric welding on RAINSTARS that are equipped with the ECOSTAR system, disconnect the battery cables !

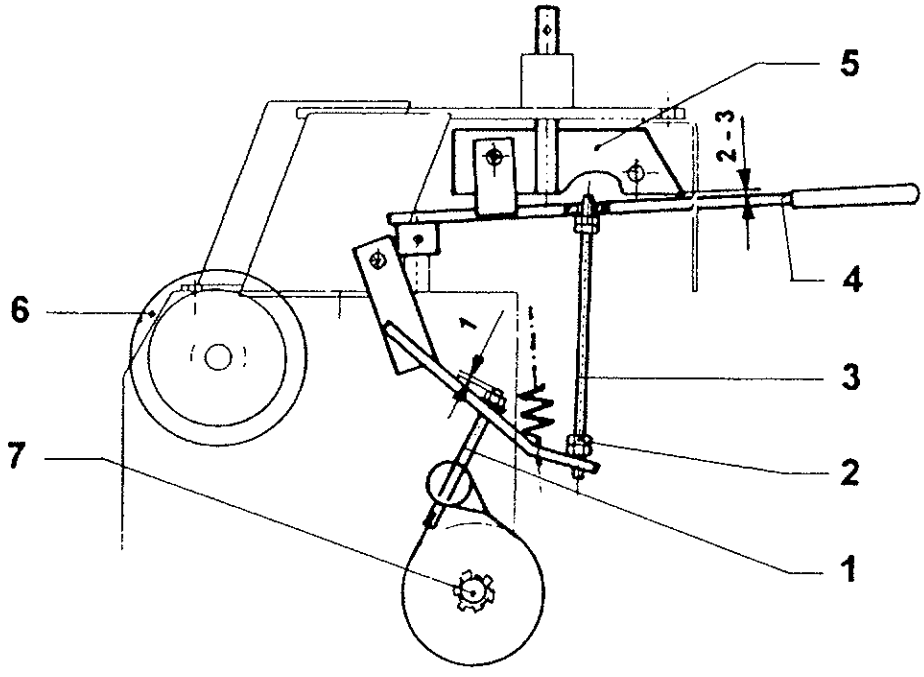
SETTING INSTRUCTIONS FOR TX RAINSTAR

1. SETTING THE BAND BRAKE

Tighten the hex. nut (1) of the band brake until the bolt thread of the brake bank projects 1 mm.

2. ADJUSTING THE THREADED ROD

Shift the gear shift lever to the shut-off position = gear stage "0".
Turn the hex. nuts (2) on the threaded rod (3) apart until the spacing between the control lever (4) and the shut-off lever (5) is about 2 to 3 mm.
Lock the hex. nuts (2).

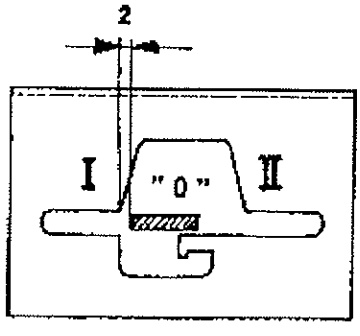


3. SETTING THE SHIFTING GATE

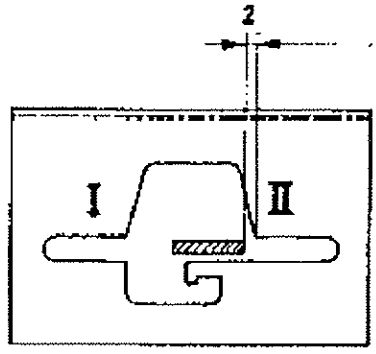
The shifting gate must be adjusted symmetrically to the gearbox shut-off range.

Procedure:

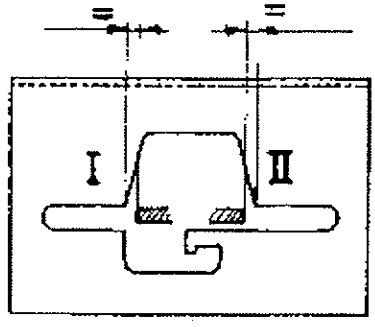
Switch into 1st gear (position "I").
Turn the V-belt pulley (6) - the PTO shaft (7) will rotate too !
Shift the control lever (4) slowly to "0" .
The shut-off point is reached when the PTO shafts stops rotating !
Set the shifting gate in this position according to the drawing (2 mm) !



Switch into 2nd 0gear (position "II").
Same procedure as above !

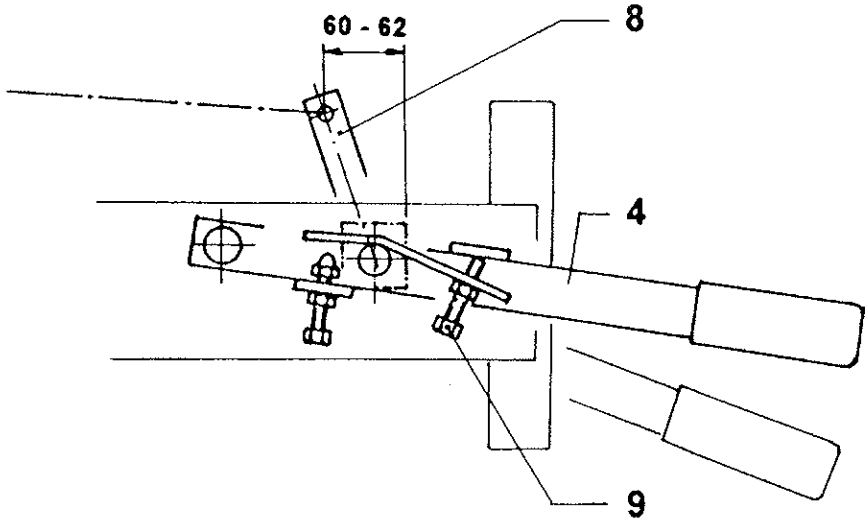


If the spacing is smaller than 1 mm or larger than 3 mm
the difference must be split up equally on both sides !!



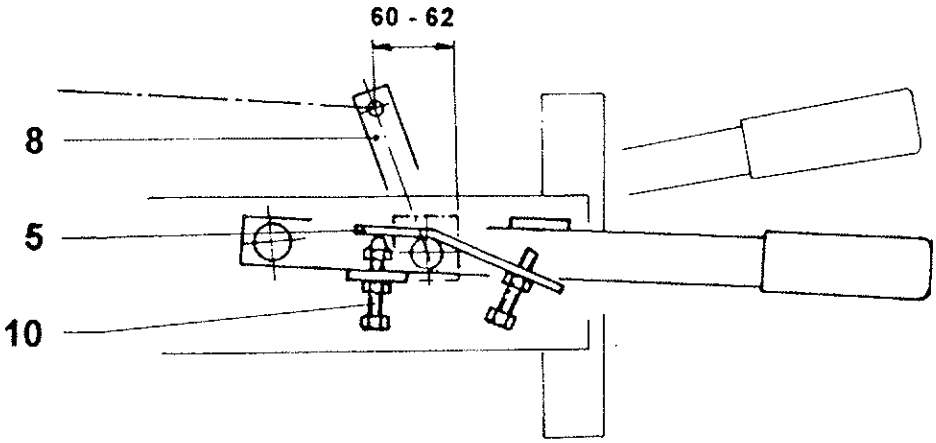
4. SETTING THE 1st GEAR SHUT-OFF

Arrest the shut-off lever (8) in the shut-off position (60 - 62 mm).
Switch into 1st gear (position "I").
Screw down the setscrew (9) to the control lever (4) and turn it in until the shut-off point (see above) is reached !
Lock the setscrew (9).



5. SETTING THE 2ND GEAR SHUT-OFF

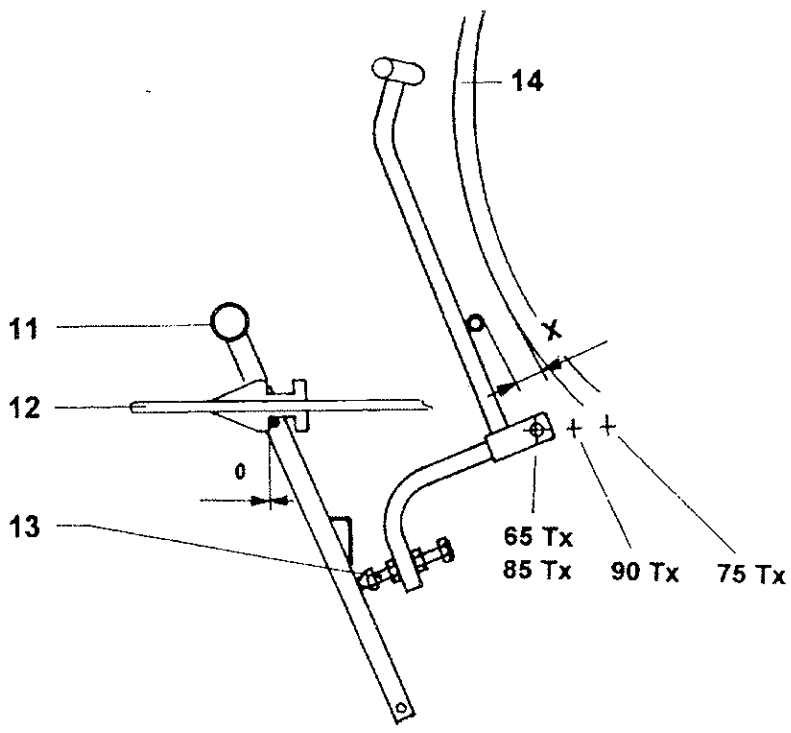
The shut-off lever (8) remains arrested in the shut-off position (60 - 62 mm).
Switch into 2nd gear (position "II").
Screw down the setscrew (10) with the cap nut to the
control lever (5) and turn it in until the shut-off point (see above) is reached !
Lock the setscrew (10).



6. SHUT-OFF FRAME ADJUSTMENT

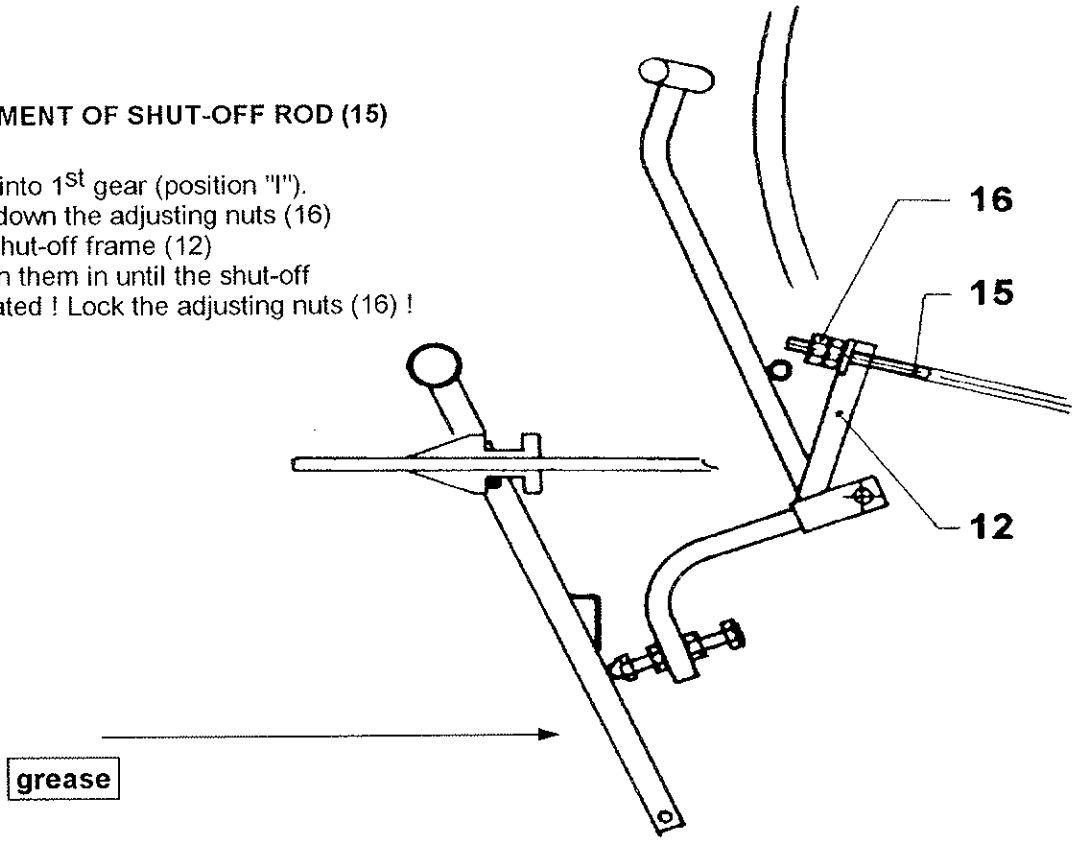
Hook in the locking hook (12) on the sled lift bracket (11).
Screw down the setscrew (13) to the sled lift bracket (11) and turn it in until there is a spacing " x "
between the overwinding guard tube and the outer reel diameter (14).
Screw down the second setscrew (13) to the sled lift bracket.
Lock the setscrews (13).

Basic model	X
65 TX	35
75 TX	40
85 TX / 85 TXL	45
90 TX / 90 TXL	55



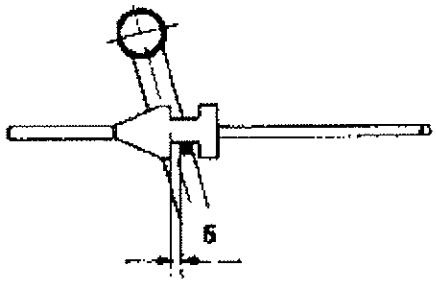
7. ADJUSTMENT OF SHUT-OFF ROD (15)

Switch into 1st gear (position "I").
Screw down the adjusting nuts (16)
to the shut-off frame (12)
and turn them in until the shut-off
is actuated ! Lock the adjusting nuts (16) !



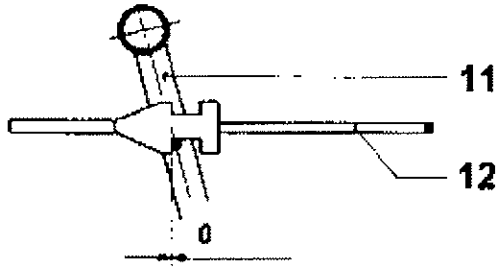
8. TESTING 2nd GEAR SHUT-OFF

Put the sled lift into the operating position.
Switch into 2nd gear (position "II").
Move the sled lift towards the shut-off position.
Shut-off must be actuated 5 mm from the edge
of the locking lever notch (12)
(after the locking of the sled lift)!!



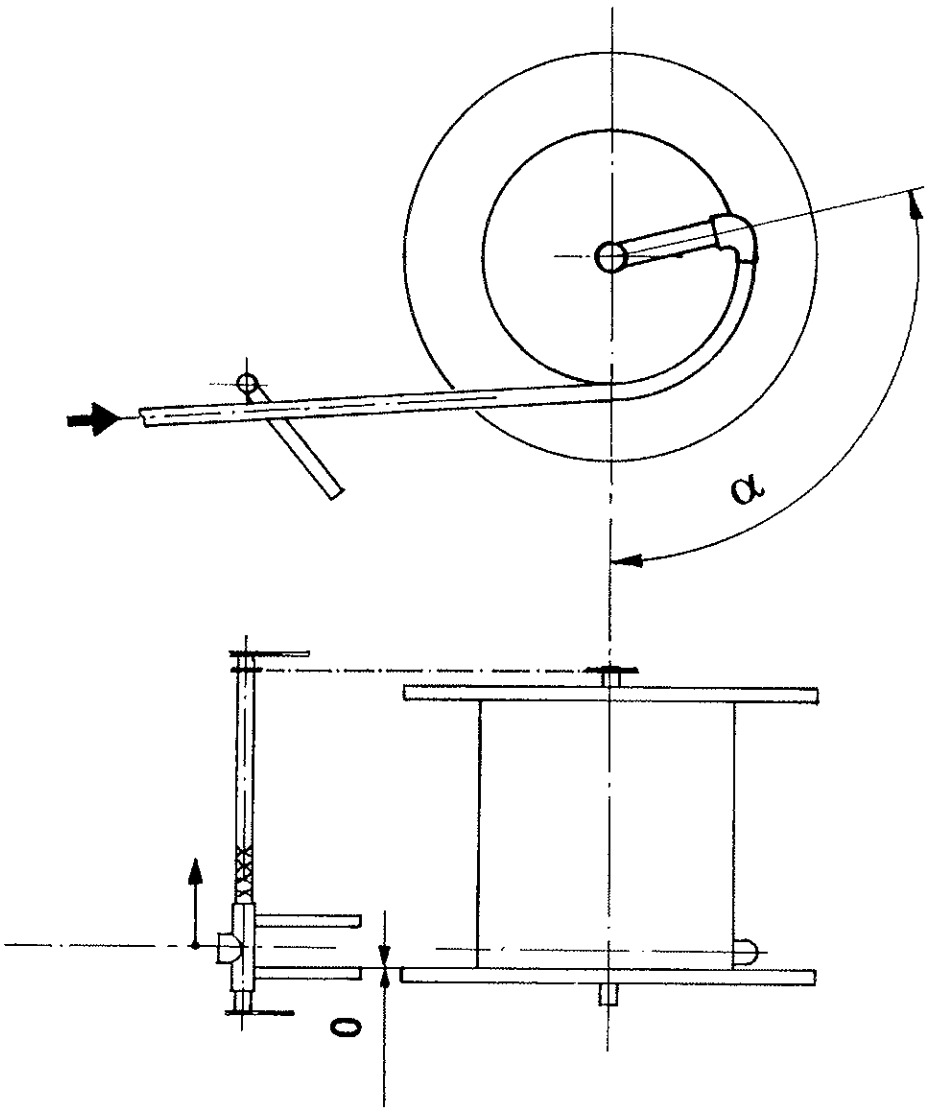
If the shut-off is not actuated, proceed as follows:

Hook in the locking hook (12) on the sled lift bracket
(11).
Turn in the setscrew (10) on the control lever (5)
(see point 5. above) - further until the
shut-off is actuated !!
Lock the setscrew !



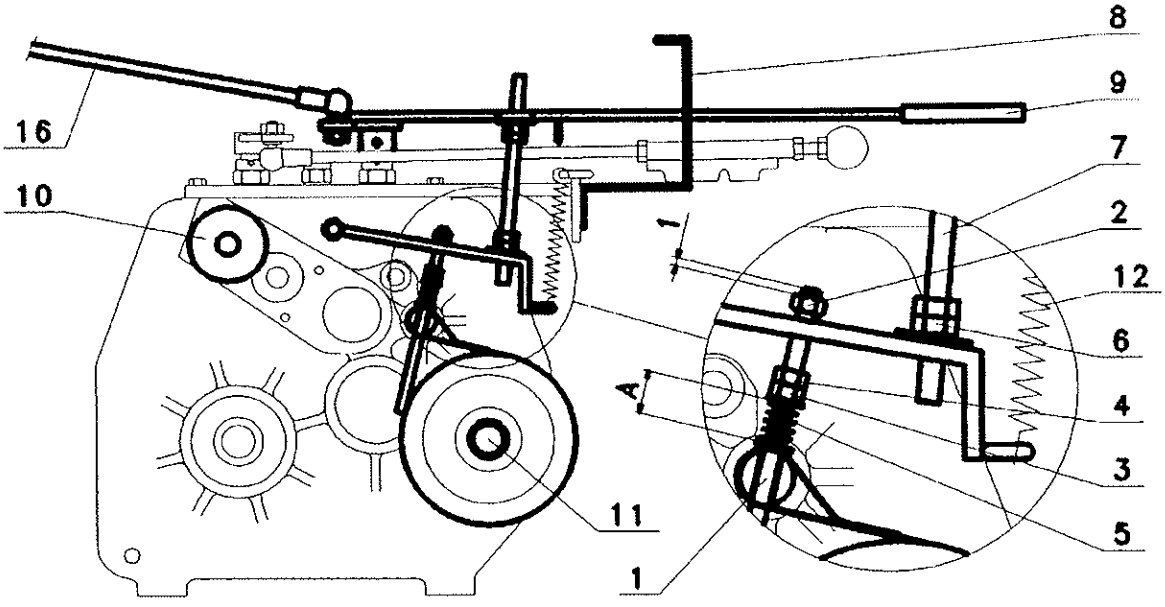
WINDING MECHANISM - STARTING POSITION

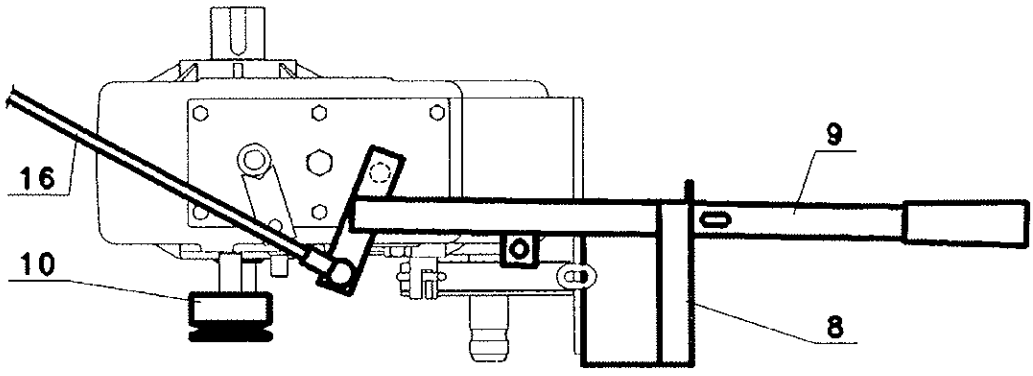
65 TX	a = 0°
75 TX	a = 0°
85 TX / 85 TXL	a = 0°
90 TX / 90 TXL	a = 0°
85 - 370 TX	a = 105°



Moving direction of winding carriage during PE-pipe retraction

SETTING INSTRUCTIONS FOR RAINSTAR TXL , WITH GEARBOX G4



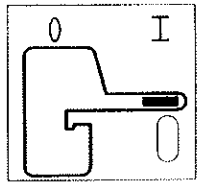


1. SETTING THE SHIFTING GATE

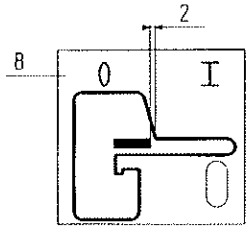
The shifting gate (8) must be adjusted to the shut-off point of the gearbox.

Procedure:

Move the shut-off lever (9) to the "PE-pipe retraction" position.



Turn the V-belt pulley (10) - the PTO shaft (11) rotates too!.
Shift the shut-off lever (9) slowly to the "0" position.



The shut-off point is reached when the PTO shaft no longer rotates.
Adjust the shifting gate (8) in this position according to the drawing (2 mm)!

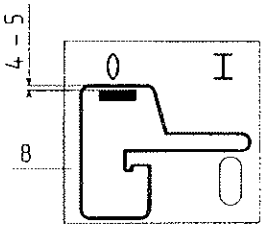
The spring (12) presses the shut-off lever (9) upward along the incline of the shifting gate and thus into the recess in the gearbox.

2. SETTING THE BAND BRAKE

Tighten the hex. nut (2) of the band brake until the bolt thread of the brake band (1) projects 1 mm.
Tighten the hex. nut (3) until the spring (5) is biased with **A = 22 mm.**
Lock with nut (4).

3. SETTING THE THREADED ROD

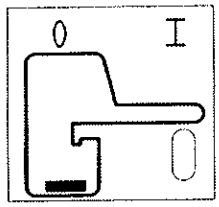
Shift the shut-off lever to the shut-off position.



Turn the hex. nuts (6) on the threaded rod (7) apart until the spacing between the shifting gate (8) and the shut-off lever (9) is about 4 to 5 mm.
Secure the hex. nuts (6).

4. INSPECTING THE BAND BRAKE for release of the brake band

Move shut-off lever (9) to the "Release" position.



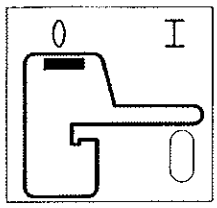
In this position the brake band must be slightly lifted off the brake disk. This prevents the brake band from sticking to the brake disk.

Caution: The brake band may stick after a longer standstill or after the winter period.
It must be loosened before putting the machine into operation again !!!
Do this by shortly turning the PTO shaft right and left with the hand wheel.
If you do not observe this the gearbox may break !!!

5. SETTING THE GEARBOX SHUT-OFF

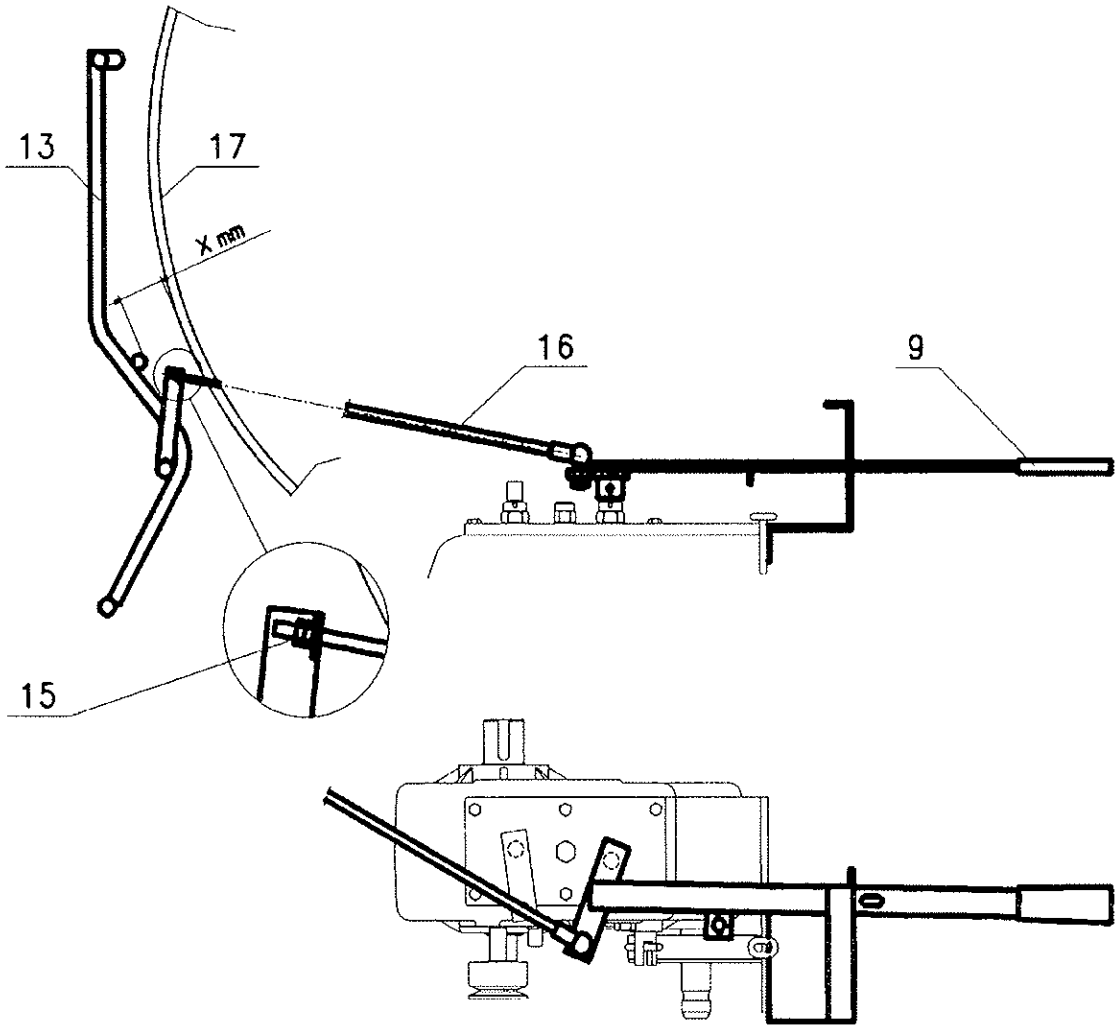
The shut-off frame (13) is adjusted at **X** mm from the reel (17) (see chart).

Move the shut-off lever (9) to the shut-off position.



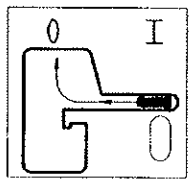
The hex. nut (15) on the control lever (16) is adjusted to the bracket (14) of the shut-off frame.
Secure the nut.

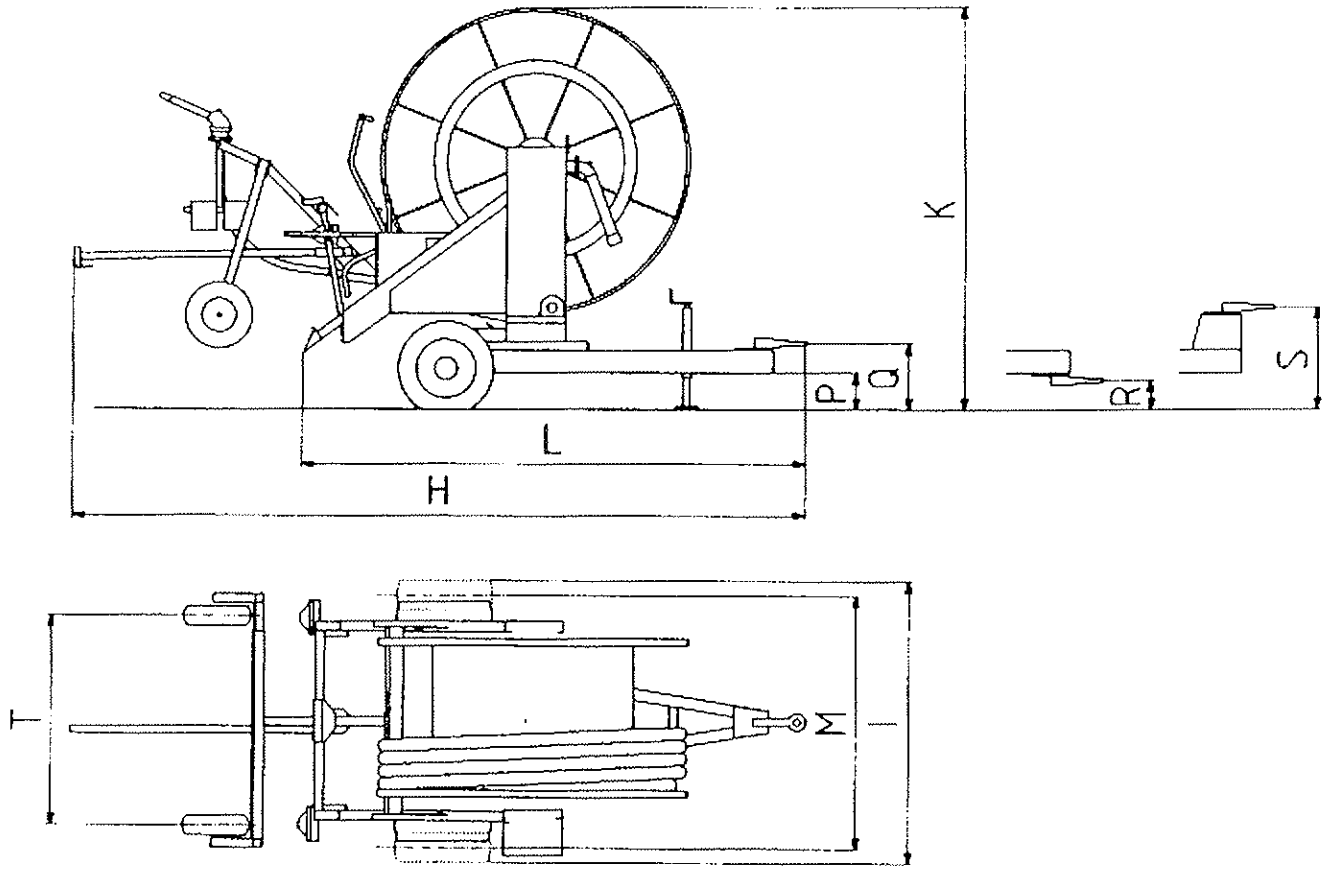
Pipe dia.	X mm
65 TX	35
75 TX	40
85 TX / 85 TXL	45
90 TX / 90 TXL	55



6. TESTING THE SHUT-OFF:

Put the shut-off frame (13) to the PE-pipe (last pipe layer).
Move the shut-off lever (9) to the "PE-pipe retraction" position.
Pull the shut-off frame (13) to the shut-off position (= **X** mm from the reel).
The shut-off lever must jump into the shut-off position!





A	PE-pipe dia. x length
B	Max. strip length
C	Capacity
D	Connecting pressure
E	Nozzle range
F	Weight incl. PE-pipe with water
G	Weight incl. PE-pipe without water
H	Overall length including sled/cart
I	Max. width at largest track width
K	Overall height
L	Length of machine without sled/cart
M	Track width undercarriage
N	Tires undercarriage
O	Tire pressure undercarriage
P	Ground clearance
Q	High hitch - standard
R	High hitch - linkage below PTO
S	High hitch - with height increase
T	Track width sled/cart
U	Wheel cart tires
V	Tire pressure wheel cart

Typ		65 Tx				75 Tx					85 Tx							90 Tx						
		65-220	65-250	65-300	75-200	65-340	75-250	75-270	75-300	85-200	75-320	75-350	75-400	85-290	90-230	90-250	90-280	85-320	85-350	85-370	90-300	90-330	90-350	100-240
A	mm x m	65x220	65x250	65x300	75x200	65x340	75x250	75x270	75x300	85x200	75x320	75x350	75x400	85x290	90x230	90x250	90x280	85x320	85x350	85x370	90x300	90x330	90x350	100x240
B	m	260	290	340	250	275	300	315	345	250	365	390	435	340	280	300	320	365	395	415	350	380	400	295
C	m3 / h	13 - 32			13-52	13-28	13-52	13-45	13-38	13-60	13-38	13-32	13-28	13-52	17 - 65			17-52	17-50	17-48	17-65	17-63	17-56	17-72
D	bar	3,5 - 10				3,5 - 10					3,5 - 10							3,5 - 10						
E	mm	14 - 22			14-28	14-20	14-28	14-26	14-24	14-30	14-24	14-22	14-20	14-28	16 - 30			16 - 26			16 - 30		16-28	16-32
F	kg	1790	1890	2050	1940	2340	2320	2400	2540	2350	2720	2850	3070	2950	2770	2900	3090	3380	3550	3660	3470	3660	3790	3450
G	kg	1270	1300	1350	1330	1570	1530	1550	1600	1550	1740	1800	1930	1780	1740	1780	1830	2110	2200	2270	2130	2220	2280	2170
H	mm	4730				5200					5200							5750						
I	mm	1800				2000					2010							2150						
K	mm	2320				2620					2880							2930						
L	mm	3000				3570					3570							4130						
M	mm	1500				1500 - 1800					1500 - 1800							1500 - 1800						
N		175 / 70 R13				185 / R14 C					195 / R14 C							10 / 80 - 12						
O	bar	2,8				3,5					3,5							4,2						
P	mm	240				255					360							280						
Q	mm	465				470					475							495						
R	mm	240				205					210							230						
S	mm	715				720					725							745						
T	mm	1500 - 2800				1500 - 2800					1500 - 2800							1500 - 2800						
U		DRM. = 200 x B = 50				5,00 - 8					5,00 - 8							5,00 - 8						
V	bar	Vollgummi				1,2					1,2							1,2						

Typ		85 TXL								90 TXL									
		75-320	75-350	75-400	85-300	85-320	90-230	90-250	90-280	90-300	85-350	85-370	85-400	85 - 450	90-330	90-350	90-380	90-400	100-310
A	mm x m	75x320	75x350	75x400	85x300	85x320	90x230	90x250	90x280	90x300	85x350	85x370	85x400	85x450	90x330	90x350	90x380	90x400	100x310
B	m	365	390	435	340	360	280	300	320	340	395	415	440	490	380	400	415	435	360
C	m3 / h	13 - 38	13 - 32	13 - 28	13 - 52		17 - 65				17 - 50	17 - 48	17 - 46	17 - 44	17 - 63	17 - 56	17 - 52	17 - 48	17 - 72
D	bar	3,5 - 10									3,5 - 10								
E	mm	14 - 24	14 - 22	14 - 20	14 - 28		16 - 30				16 - 26			16 - 30	16 - 28		16 - 28	16 - 28	16 - 32
F	kg	2780	2910	3130	3020	3180	3830	2950	3150	3270	3650	3770	3940	4220	3770	3900	4090	4220	4100
G	kg	1740	1780	1880	1800	1860	1740	1770	1820	1850	2220	2270	2340	2490	2250	2290	2370	2430	2390
H	mm	5280									5820								
I	mm	2010									2150								
K	mm	3030									3100								
L	mm	3650									4200								
M	mm	1500 - 1800									1500 - 1800								
N		195 / R14 C									10,0 / 80 - 12								
O	bar	3,5									4,2								
P	mm	260									280								
Q	mm	475									495								
R	mm	210									230								
S	mm	725									745								
T	mm	1500 - 2800									1500 - 2800								
U		5,00 - 8									5,00 - 8								
V	bar	1,2									1,2								

EG-Konformitätserklärung

im Sinne der EG-Maschinenrichtlinie 89/392/EWG, Anhang II A

Hiermit erklären wir,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, A - 8570 Voitsberg - Austria
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

daß die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinien entspricht.
Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Bezeichnung der Maschine: RAINSTAR Beregnungsmaschinen mit Schlauchtrommel
Maschinentyp Grundgeräte: 65 TX, 75 TX, 85 TXL und 90 TXL

Diese Maschinenreihe ist entwickelt und gefertigt in Übereinstimmung mit der Norm:
EN 908-Juni 1994
in der auch die normativen Verweisungen auf EN 292-1 - 1991, EN 292-2 - 1991 und EN 294 - 1992 enthalten sind.

Voitsberg, 1. 1. 1997

EU Declaration of Conformity

in accordance with the General EU Principles for Machinery
89/392/EWG/Annex II A

We,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, A - 8570 Voitsberg - Austria
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

herewith declare that in respect of its conception and construction and in the types and styles marketed by us, the machine mentioned below fully corresponds with the relevant fundamental provisions for safety and health stipulated in the General EU Principles for Machinery.
Any modification to this machine without our express agreement will invalidate this attestation.

Designation: RAINSTAR hose reel irrigation machines
Basic model: 65 TX, 75 TX, 85 TXL and 90 TXL

This range of machines is designed and manufactured in accordance with the standard:
EN 908-June 1994
which also includes the normative references to EN 292-1 - 1991, EN 292-2 - 1991 and EN 294-1992.

Voitsberg, 1. 1. 1997

Attestation de conformite CE

au sens des régles des machines CE 89/392/EWG, annexe II A

Par la présente nous, la Sté.

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, A - 8570 Voitsberg - Autrichien
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

certifions que la conception et la fabrication par nous même du matériel désigné ci-après es conforme aux normes de sécurité et d'hygiène des règles de la CE.

En cas d'une modification de la machine non convenue avec nous cette attestation perd sa validité.

Désignationde la machine: Enrouleurs RAINSTAR avec tambour
Type de machine/Modèles de base: 65 TX, 75 TX, 85 TXL et 90 TXL

Cette série a été mise au point et fabriquée en conformité avec la norme:
EN 908-June 1994
qui comprend également les renvois normatifs à EN 292-1 - 1991, EN 292-2 - 1991 et EN 294-1992.

Voitsberg, 1. 1. 1997

EG-VERKLARING VOOR MACHINES

VOLGENS DE EG-RICHTLIJNEN 89/392/EWG, BIJLAGE II A

Hiermede verklaren wij,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
A-8570 VOITSBERG - Oostenrijk
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

dat de hieronder genoemde machine op grond van fabricage en bouwwijze alsook in de door ons in de handel gebrachte uitvoering voldoet aan de wettelijk vastgelegde veiligheids- en gezondheidseisen van de EG-richtlijnen.

Bij een niet door ons goedgekeurde verandering aan de machine verliest deze verklaring haar geldigheid.

Machineaanduiding: RAINSTAR Beregeningshaspel met slangtrommel
Type machine: 65 TX, 75 TX, 85 TXL en 90 TXL

Deze machine is ontwikkeld en vervaardigd in overeenstemming met de norm:
EN 908 - juni 1994
waarin ook de normen m.b.t. EN 292-1 - 1991, EN 292-2 - 1991 en EN 294-1992.

Voitsberg, 1. 1. 1997

EU-Konformitetserklæring

i overensstemmelse med de generelle TU principper for maskiner 89/392/EWG, tillæg II A

Vi,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
A-8570 VOITSBERG - Austria
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erklærer hermed, hvad angår maskinens idé og konstruktion, samt art og stil markedsført af os, at nedennævnte maskine svarer fuldt ud til de pågældende fundamentale bestemmelser for sundhed og sikkerhed betinget i de generelle EU principper for maskiner.
Enhver ændring af maskinen uden vor udrykkelige tilladelse vil ugyldiggøre denne erklæring.

Betegnelsc: RAINSTAR vandingsmaskine med slangetromle
Grund model: 65 TX, 75 TX, 85 TXL og 90 TXL

Denne række af maskiner er udviklet og produceret i overensstemmelse med norm:
EN 908 - June 1994
som også includerer de normative henvisninger til EN 292-1 - 1991, EN 292-2 - 1991 og EN 294-1992.

Voitsberg, 1. 1. 1997

EG-DEKLARATION

I enlighet med EU:s grundstadgar för maskiner 89/392/EWG, Annex II A

Vi,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
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Tel. 03142 / 200-0, Telefax: 03142 / 23 095

bekräftar härmed att de typer och modeller av bevattningsmaskiner, avseende idé och konstruktion som marknadsförs av oss och anges nedan, till fullo motsvarar de relevanta grundstadgar för säkerhet och hälsa föreskrivna i EU:s stadgar för maskiner.

Ändring utförd utan Bauers fullständiga medgivande ogiltiggör denna bekräftelse.

Konstruktion: RAINSTAR bevattningsmaskiner
Basmodell: 65 TX, 75 TX, 85 TXL och 90 TXL

Dessa maskiner är konstruerade samt producerade i enlighet med standard:
EN 908 - Juni 1994
vilken också inkluderar de normgivande anvisningarna i EN 292-1 - 1991, EN 292-2 - 1991 samt EN 294-1992.

Voitsberg, 1. 1. 1997

DECLARACAO DE CONFORMIDADE - CE

no senlido da DIRECTIVA MÁQUINAS CE 89/392/EWG, Anexo II A

Pela presente, nós

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
A-8570 VOITSBERG - Austria
Tel. 03142 / 200-0, Telefax 03142-23 095

declaramos, que a máquina em seguida referida corresponde às relevantes exigéncias básicas de segurança e higiene das directivas da CE na sua concepção e construção bem como na versão por nós posta em circulação.

Esta declaracão perde a validade, se a máquina vier a sofrer alterações por nós não autorizadas.

Denominação da máquina: **Máquina de Rega RAINSTAR com tambor de tubo flexível**
Tipo de máquina - versão base: **65 TX, 75 TX, 85 TXL e 90 TXL**

Esta série de máquinas é concebida e fabricada em conformidade com a Norma EN 908 - Junho 1994
a qual contem tambem as remissivas normativas referentes a EN 292-1 - 1991, EN 292-2 - 1991 e EN 294-1992.

Voitsberg, 1. 1. 1997

EY-Vaatimustenmukaisuusvakuutus

Ey direktiivin 89/392/ETYLiite II A mukaisesti

me,

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
A-8570 VOITSBERG - Itävalta
Puhelin 03142 / 200-0, telefax 03142-23 095

ilmoitamme täten, että alla mainitut koneet, niiden suunnittelu ja rakenne meidän markkinoiminamme tyyppeinä, täyttävät täysin vastaavat perusturvallisuus-ja terveysvaatimukset EY :n konedirektiivin mukaisesti.

Kaikki koneeseen ilman kirjallista lupaamme tehdyt muutokset aiheuttavat tämän vakuutuksen voimassaolon lakkaamisen.

Konetyyppi: **RAINSTAR putkikelatyyppinen sadetuskone**
Perusmallit: **65 TX, 75 TX, 85 TXL ja 90 TXL**

Tämä konemallisto on suunniteltu ja valmistettu seuraavan standardin mukaisesti:
EN 908 - Kesäkuu 1994
joka myös sisältää ohjeelliset viitlaukset: EN 292-1 - 1991, EN 292-2 - 1991 ja EN 294-1992.

Voitsberg, 1. 1. 1997

DICHIARAZIONE DI CONFORMITA CE

ai sensi delle normative CE 89/392/EWG, appendice II A
relativa alle macchine agricole

Con la presente noi, la ditta

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, A - 8570 Voitsberg - Austria
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

dichiara che la progettazione e fabbricazione delle macchine di seguito indicate correspondono alle norme di sicurezza CE.

Ogni modifica non concordata con la ditta costruttrice fa decadere la presente dichiarazione.

Denominazione della macchina: **Irrigatore RAINSTAR con tamburo**
Tipo di macchina, modelli di base: **65 TX, 75 TX, 85 TXL e 90 TXL**

Questa serie è stata progettata et fabbricata in conformità alla norma:
EN 908 - Giugno 1994
contenente le norme EN 292-1 - 1991, EN 292-2 - 1991 e EN 294 - 1992.

Voitsberg, 1. 1. 1997

Declaración de conformidad de la UE

según la directiva comunitaria para maquinaria 89/392/EWG, anexo II A

Fábrica de tuberias y bombas BAUER GmbH
A-8570 VOITSBERG - AUSTRIA
Tel. 03142 / 200-0, Telefax: 03142 / 23 095

Declaramos que la máquina aquí descrita cumple todos los requisitos de seguridad exigidos en las directivas de la Unión Europea en cuanto a concepción, montaje y equipamiento.

Toda modificación de la máquina realizada sin nuestra conformidad, conlleva la pérdida de validez de esta declaración.

Descripción de la máquina: **RAINSTAR-Máquinas de riego por aspersión con tambor de recogida de la manguera**
Modelos: **65 TX, 75 TX, 85 TXL ja 90 TXL**

Esta serie se ha desarrollado y realizado de acuerdo con la norma:
EN 908 - Junio 1994
que comprende las disposiciones contenidas en:: EN 292-1 - 1991, EN 292-2 - 1991 y EN 294-1992.

Voitsberg, 1. 1. 1997

Basic unit: ----------

Model: ----------

Serial no..: ----------Construction year: ----------

Wheel cart	☐	Hydraulic machine supports	☐
Asymmetric wheel cart	☐	Mechanical swivel aid	☐
Sled	☐	Tachometer	☐
Spray boom AS 26	☐	ECOSTAR 3100	☐
Overpressure shut-off valve	☐	Solar panel	☐
Low-pressure shut-off valve	☐	Electric shut-off valve	☐

Sprinkler model: ----------

Acceptance date: ----------

☒ Please tick appropriate boxes!

Service carried out on:	Notes:	
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NOTES:

INDEX

Technical data, pictures and dimensions are noncommittal. No claims can be asserted on account of this instruction manual. We reserve the right to modify the machines without correcting this manual.

Röhren- und Pumpenwerk BAUER Ges.m.b.H. - A-8570 Voitsberg/Austria
Tel. 031 42/ 22 020-0, Fax 031 42/23 095